NOV 1907

Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Vol. VII CHICAGO, ILL., NOVEMBER 22, 1907 No. 5

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributers of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

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Vulcan Steam Shovels

Are digging Cement Rock without blasting and loading it on cars for the Burt Portland Cement Co. of Bellevue, Mich., for less than 12 cents per cubic yard, and they are operating the shovels at only half capacity. How much is it costing YOU? Better write today for information.

The Vulcan Iron Works Company, 129 Vulcan Place, Toledo, Ohio

UNION MINING COMPANY,

Manufacturers of the Celebrated

MOUNT SAVAGE FIRE BRICK GOVERNMENT STANDARD.

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

Lime Kiln and Cement Kiln Construction

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

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CAPACITY, 60,000 PER DAY. ESTABLISHED, 1841.

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New Windsor, Illinois.

J. O. FREEMAN, Genl. Mgr.

Sewer Pipe

Drain Tile.

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Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

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DEXTER Portland Cement THE NEW STANDARD

Sole Agents SAMUEL H. FRENCH & CO. Philadelphia

Phoenix Portland Cement UNEXCELLED FOR ALL USES.

Manufactured by

PHOENIX CEMENT CO.

NAZARETH, PA.

Sole Selling Agent WM. G. HARTRANFT CEMENT CO., Real Estate Trust Building PHILADELPHIA, PENNSYLVANIA

"RELIANCE" BELT ABSOLUTELY BEST

FOR GRIFFEN MILLS
FOR TUBE MILLS
FOR BALL MILLS

Chicago Belting Company

MAKERS

67-69 South Canal Street, SEND US YOUR SPECIFICATIONS. CHICAGO, ILL.

ALMA Portland Cement

STANDARD BRAND OF MIDDLE WEST.

Specially Adapted to all Reinforced Concrete and High-Class Work.

Alma Cement Co., WELLSTON, OHIO

Special Features for November.

Modern Fireproof Factory Construction Illustrated.
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An International Organization of Employing Plasterers.
The Forty-first Annual Convention of the American Institute of Architects.
Assured Success of the Great Cement Show in Chicago.
"Scribo" Writes Entertainingly of the Supply Dealers in Many Inland Cities.

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By Iron & Steel Companies AND ON 40 RAILROAD SYSTEMS Also in 1600 Places

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SUCCESSFULLY USED FOR TEN YEARS IN ALL KINDS OF CONCRETE WORK

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Marquette Building, Chicago

A Standard Portland for Universal Use

DAILY OUTPUT 17,000 BARRELS

PLANTS AT CHICAGO AND PITTSBURG

UNIVERSAL PORTLAND CEMENT CO.
CHICAGO PITTSBURG

Nazareth Portland Cement

One Mill—One Brand—One Quality—
The Best Uniform in Color,
Strength and Fineness.

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High Tensile Strength, Finely Ground, Light and Uniform in Color.
MANUFACTURED BY THE
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Western Office:
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Write for Catalogue.
Capacity, 8,000,000 Yearly.

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ESTABLISHED 1888.

Manufacturers of the celebrated "Buckeye" brand of

Portland Cement

"Buckeye" has stood the wear and tear in many important places for the past fifteen years and under the new process of manufacture is now better than ever.

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Bellefontaine, Ohio.

ONE GRADE—ONE BRAND
The Recognized Standard American Brand.

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Chicago Portland Cement Co.

MANUFACTURER OF . . .
"CHICAGO AA" PORTLAND CEMENT.

We make one brand only. The best that can be made.

HYDRATED PORTLAND LIME

IS IDEAL FOR
Waterproofing Concrete Blocks
SAVES MONEY. TRY IT.

FOR INFORMATION AND PRICES, WRITE
CHICKAMAUGA CEMENT CO.,
Sole Manufacturers. CHATTANOOGA, TENNESSEE

Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume VII. CHICAGO, ILL., NOVEMBER 22, 1907. Number 5.

MODERN FACTORY CONSTRUCTION.

High Type of Well Lighted and Perfectly Fireproof Building at Syracuse, N. Y.

A splendid example of an up-to-date concrete factory building has recently been completed for the Brown-Lipe Gear Company at Syracuse, N. Y., and is now being used by that concern.

As will be observed in the illustration, a maximum of light is provided, which is always a very important factor of usefulness in buildings of this character, and this, with the absolute fireproofing which can only be obtained by concrete construction, makes this structure a model of its class. The Brown-Lipe Company make automobile gears and employ several hundred skilled workmen operating a great number of specially designed and expensive machines. They carry also a large stock of valuable raw materials.

The building is 138 by 60 feet, with an ell 87 by 60 running at an angle with the main building. Two elevators, freight and passenger, together with stairs, wash-room and toilet-room for each floor, are placed in another ell 25 by 28 feet, thus leaving the main part of the building with a floor area of 10,080 feet unbroken by openings.

With the exception of a low brick curtain wall under the windows on each floor, the entire building is of reinforced concrete and hollow tile construction. The walls for each floor are carried on a concrete beam varying from 12 to 20 inches in width, and 20 inches in depth. These beams are reinforced with two or three 1x3-inch Kahn trussed bars, the width of the beam and the reinforcement varying with the load. Besides supporting the brickwork, these beams support the floor of the outside spans. The brick walls of the basement are supported on concrete sills, the tops of which are even with the finished basement floor.

THE NEW PLANT OF THE BROWN-LIPE GEAR COMPANY AT SYRACUSE, N. Y.

The first floor is designed for a load of 100 pounds in the office section. The remaining area, to be used for storage and shipping-room, carries a 200-pound load. All other floors are designed for 150-pound load, and the roof for 75 pounds.

The floors are of hollow tile between 3-inch concrete joists 17 inches on centers, and vary in thickness from 10 to 14 inches according to the spans. Each concrete joist is reinforced with a ¾x2-inch Kahn bar, supplemented in the wide spans with a ⅜-inch round rod laid between the incline shear members of the trussed bar. Where a greater steel section is needed on account of extra load, a ⅝-inch round rod is used. In the roof ¾ and ½-inch Kahn bars were alternated. All floors are covered with 2 inches of rough concrete finish laid at the same time with the beams and joists, thus being part of them and increasing the compressive section. Two-inch wooden sleepers are placed on this finish, imbedded in 1½ inches of cinder concrete, and ⅞-inch maple floor is laid on the sleepers.

Piling under the footings was driven to a depth of about 35 feet and cut off 6 inches below water level. The piles extend into the concrete 1 foot. All footing-holes were sheet-piled, and had to be kept dry by pumping until about a foot of concrete had been put in place. A double grill of Kahn bars was then put in, and the remainder of the footings, varying from 30 to 36 inches in depth. The footing caps were all solid concrete, the size being in proportion to the columns supported. Steel dowels were run through the caps into the footings about one foot and extended upward in the column about three feet. The interior columns are 28x28 inches in the basement, reinforced with four 1¼x3¾-inch trussed bars and eight 1½-inch round rods, and reduced to 12 by 12 inches under the roof with four ¾x2-inch trussed bars. The trussed bars are placed in the corners of the columns, and the round rods are placed symmetrically along the sides. The column bars between the successive floors are connected by pipe sleeves 12 inches long, making the action from roof to footing continuous through the reinforcement. The exterior columns are 20 by 30 inches up to the second floor, where they reduce and carry 16x24 from there to the roof. This reduction is accomplished at a decorative belt course 22 inches high, running above the second floor wall beams. At the same point the brickwork drops back 4 inches, leaving the column revealed that much.

The floor space of the main building is divided into three bays by a double row of columns 23 feet

Continued on page 40.

NORTHAMPTON PORTLAND CEMENT COMPANY

Strength
Durability
Permanence

Not only laboratory tests, but results in actual work prove the high grade quality of

Northampton
Portland Cement

Especially adapted for Cement Blocks, Sidewalks, and all forms of concrete and re-inforced concrete construction.

Northampton Portland Cement Co.

Main Office and Works
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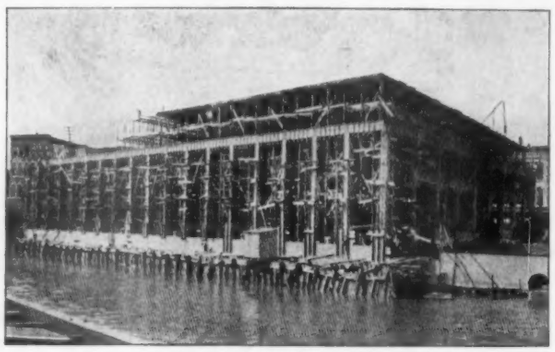
SANDUSKY PORTLAND CEMENT CO. SANDUSKY, OHIO

Medusa Water-Proof Compound

Makes all Concrete Watertight

The foundations and floor in basement, all of cement, in the Bostwick-Braun warehouse, Toledo, O., here illustrated, contain Medusa. Write for pamphlet describing its use.



Do not accept a substitute, as there are many adulterated compounds on the market.

Sandusky Portland Cement Co.

SANDUSKY, OHIO

Write for samples of our Pure White Portland Cement.

WHY?
Egyptian Portland Cement

Every mason likes it.
Works easy.
Excellent color.
High in tensile strength.
Fine ground.
Mill centrally located.
Low freight rates.
Popular price.

We can save you money — Write us your needs

THE BARTLETT CO.

Mills: Fenton, Mich. **Sales Office, Jackson, Mich.**

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Strength
Uniformity
Satisfaction

A Dependable Portland Cement

An Unblemished Record for six years speaks for itself

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UNEQUALLED FOR HIGH CLASS CONCRETE WORK

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Tell 'em you saw it in ROCK PRODUCTS.

CAPACITY 700,000 BARRELS ANNUALLY

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PORTLAND PENN-ALLEN CEMENT CO. ALLENTOWN, PA. U.S.A.

STANDARD SPECIFICATIONS GUARANTEED

Newaygo Portland Cement Co.

Sales Office: Michigan Trust Building

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Write us for prices. Send us your orders.

Improved Utica Hydraulic Cement

The finest ground and highest grade Natural Cement manufactured in the U. S. Every car tested by Robt. W. Hunt & Co., and their test furnished on every car shipped.

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MAKERS OF THE FAMOUS BANNER BRAND OF

LOUISVILLE CEMENT.

Guaranteed that 90 per cent. will pass a ten thousand Mesh Sieve.

WE SELL TO DEALERS ONLY.

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Reputation Unrivalled

ONE BRAND ONLY
Sound, Strong, Uniform

TRADE MARK
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MANUFACTURED BY VULCANITE PORTLAND CEMENT CO. NEW YORK & PHILADELPHIA
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ONE OF THE OLDEST AND THE BEST.

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Portland Cement Co.

TRADE Thomas A. Edison MARK
EDISON PORTLAND CEMENT COMPANY NEW VILLAGE, N.J.

85 per cent. thru 200
98 per cent. thru 100

The Finest Ground Portland Cement Manufactured

"Neat tests are of less value than those of the briquettes made with sand and cement. **The fineness of the cement is important, for the finer it is the more sand can be used with it.**"
[Abstract from "Specifications for Portland Cement," issued by the United States Navy Department, June 12, 1905.]

FINE GRINDING
OF
PORTLAND CEMENT
AND WHAT IT MEANS

For a proper understanding and full appreciation of the importance of fine grinding, it is necessary to explain that Portland Cement (as manufactured in the Lehigh Valley) is made from what is commonly understood as "Cement Rock," with the addition of sufficient limestone to give the necessary amount of lime. The rock is broken down and then ground to a fineness of 80 per cent to 90 per cent through a 200 mesh screen. This ground material passes through kilns and comes out in clinker. This is ground and **that part of this finely ground clinker that will pass a 200 mesh screen is cement;** the residue is still clinker. These coarse particles or clinkers will absorb water very slowly, are practically inert, and have very feeble cementing properties. **The residue on a 100 mesh screen is useless.**

Edison Portland Cement is ground 85 per cent through a 200 mesh screen,—10 per cent finer than other brands. This can be verified in any laboratory.

In a barrel of Edison Portland Cement, therefore, you get 85 per cent of Portland Cement and 15 per cent of clinker. In a barrel of other brands you get 75 per cent of cement and 25 per cent of clinker.

If you are buying a ton of coal, would you buy the coal containing 25 per cent of slate, or would you prefer the coal containing but 15 per cent of slate?

If, instead, you are buying iron ore, would you not give preference to ore that contained 10 per cent more units of iron?

Another point is worth considering and that is that the Edison Portland Cement Company make but one brand or quality, and that is the best.

SALES OFFICES:

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Machesney Building, Pittsburgh.
Union Building, Newark, N. J.
Post Office Square Bldg., Boston, Mass.

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"SUPERIOR"

Made in a modern mill from materials in the highest degree suited to the manufacture of an excellent grade of Portland Cement.

Guaranteed to meet the requirements of "Standard Specifications."

The Superior Portland Cement Co.

Works:
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C. & O. and N. & W. Rys.

General Offices and Sales Dept.,
Charleston, W. Va.

FIRST ANNUAL CEMENT SHOW

TO BE HELD AT THE

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December 17th to 21st, 1907

Great Coliseum to be Filled with Educational Exhibits. A Complete Display of

CEMENT
CEMENT WATERPROOFING COMPOUNDS
CEMENT COLORING MIXTURES
CEMENT CONCRETE MIXERS
CEMENT BLOCK MACHINES
CEMENT BRICK MACHINES
CEMENT PIPE MACHINES
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CEMENT POST MACHINES
REINFORCING MATERIAL
CEMENT LITERATURE
CONCRETE FORMS
TESTING MACHINES

and other articles related in any way to the cement industry

Application Blanks and Diagrams may be obtained of L. L. FEST, Manager, New Southern Hotel, Chicago

Tell 'em you saw it in ROCK PRODUCTS.

HYDRATITE + CEMENT + AGGREGATES = WATERTIGHT CONCRETE.

The logical way to waterproof concrete so that the results will be permanent is to incorporate therewith materials which, instead of being inert or neutral, will react chemically on some of the constituents of the cement; so that these constituents, so far from each maintaining a separate and independent character, will unite and form an inseparable mass which densifies, and thereby hardens the concrete, making it impermeable.

The addition of an inert or neutral compound may, for a time, have the effect of rendering concrete impermeable; this effect, however, can be only temporary, since because of this inertia or neutrality, such a compound is unable to unite and become a part of the materials to which it is added; and a mere filler which is the result of a mechanical mixture cannot possibly be, and never is, permanent.

As cement acts on the aggregates added to it, combining as it does, chemically and not mechanically, so does **Hydratite** react on the constituents of the cement, insuring impermeability, without affecting either the setting qualities or the strength of the concrete.

Hydratite is mixed dry with cement in but very small proportions; costs no more than any other compound; *is the logical way*, and, therefore, measured by results, costs less than any other compound.

A. C. HORN COMPANY, WATERPROOFING ENGINEERS AND MFRS. STRUCTURAL WATERPROOFING COMPOUNDS. **8 Burling Slip, New York.**

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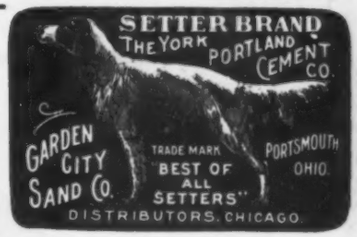

As **General Sales Agents of the York Portland Cement Company,** we are now placing agencies for the sale of the **"Setter Brand"** product of this mill, **one of the most modern in existence.** Our policy will be to give **exclusive agency** in each town and to sell to no one else. We will also include agencies for **Toch Bros. "R. I. W." Water Proof Paint** and **"Stonkote" Plaster** in all colors for **Rough Cast Exterior** for houses. Your inquiries by mail will be answered in detail. Apply quick or your neighbor will get the agency you should have. Address

The Garden City Sand Company

Dept. 11, 188 Madison St. **CHICAGO, ILL.**

PATENT SOAPSTONE FINISH

PLAIN AND IN COLORS FOR WALLS AND CEILINGS

Patent Soapstone Mortar

Prepared in any Color for Laying Pressed and Enameled Brick, Stone Fronts, Terra Cotta, Chimneys, Fire Places, Etc.

The Dodge Blackboard Material or Artificial Slate.

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SOAPSTONE MICA. CONCRETE DRESSING.
CRUSHED, GROUND AND BOLTED SOAPSTONE.

AMERICAN SOAPSTONE FINISH CO.
C. P. DODGE, Proprietor. CHESTER DEPOT, VT.

Red, Brown, Buff and Black

MORTAR COLORS

The Strongest and Most Economical in the Market.

Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO., CHATTANOOGA, TENNESSEE.

Tell 'em you saw it in ROCK PRODUCTS.

FOR CEMENT MILLS Rhoads Leather Belting stands the racket well. It is properly stretched and even-balanced, durable and economical. A sample roll bought under our guarantee of satisfaction is a safe investment.

Let us serve you.

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Philadelphia: 12 N. Third St.
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Amatite ROOFING

THE MINERAL SURFACED ROOFING

Ordinary ready roofing is made with a smooth surface, prepared to receive a coat of paint. Sometimes the paint is applied at the factory and when the roof is laid no coating is required, but after a year or two the paint, under the hard conditions of roof service, wears out and it is necessary to coat the roofing again. Every year or two after that the same thing is necessary, and the expense of these annual paintings will in the end be more than the original cost of the roofing.

Amatite, however, is a different kind of roofing. In place of the smooth surface it has, on the weather side, a firmly embedded layer of crushed mineral matter. This mineral matter will wear longer than a dozen coats of paint. It needs no coating, and when your Amatite roof is once laid the work is all done and the expense is ended.

The durability of Amatite is assured by its thickness and weight. It contains more material per square foot than other roofings costing several times as much.

Booklet and sample will be gladly sent to you without charge, if you will forward your request to the nearest office.

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50 LBS. HIGH EXPLOSIVES
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"Taylor-Made" **Manganese Steel** "Taylor-Made"

The actual ratio of wear in "Taylor-Made" plates, as compared with other castings, has been proved by large users in hundreds of cases to warrant their use.

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We shall be pleased to give you further information.

Taylor Iron & Steel Co.
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AND

FLINT PEBBLES

of the best quality only, imported and sold by the

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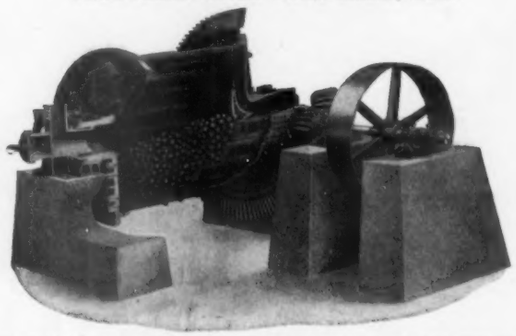
Cement Mill Machinery

FOR EITHER WET OR DRY METHOD OF MANUFACTURE

CRUSHERS—DRYERS—KILNS—COOLERS
TUBE MILLS—BALL TUBE MILLS, ETC.



Our Ball-Tube Mill shown above is a distinct innovation in the line of cement-making machinery, and is destined to entirely replace the old-time ball mill for the coarse grinding of cement clinker, because of its much greater grinding capacity per horse-power and the extremely low cost for repairs.

NO SCREENS TO CLOG OR WEAR OUT
THEREFORE NO SHUT-DOWNS

Our entire line of Cement Mill Machinery is distinctive in character and design and is acknowledged by discerning engineers to be superior to any other on the market.

Our new Catalog No. 7 gives full and complete details. Send for it.

POWER AND MINING MACHINERY COMPANY

CUDAHY (Suburb of Milwaukee) **WISCONSIN**

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Southern Representatives: W. E. Austin Co., Atlanta, Knoxville, Birmingham.

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Why are the Palmer Lime & Cement Co.'s Limes in demand?
Why are they used in all principal buildings in New York, Brooklyn and neighboring cities?
Because they are the **best.**
Best for **finishing.**
Best for **brick** and **stone work.**
For finishing, because they will **not** pit, will **not follow** the trowel, and work **smooth** and **clean.**
For **brick** and **stone,** because they are strong, large yielders, and will lay **more** brick per barrel than any other lime on the market, therefore they are cheaper for the mason's use.

We are Sole Distributers of the—

Cheshire finishing lime, which is well known and always A 1.
Bellefonte Lime, a highly caustic chemical lime, and a large yielder for brick work, making a bond almost equal to cement mortar.
Palmer select finishing, fully guaranteed.
Palmer No. 1 common, high grade for brown and scratch coats.
Yorktown Heights lime
Connecticut White lime
Hoosac Valley lime
Hadsell White lime
} Especially adapted to brown and scratch coats.

And—

Palmer Chemical Lime, which has a universal reputation, analyzing over 99 per cent Pure Carbonate.
Alsen's American Portland Cement, for Long Island.
We **succeed** in pleasing our customers.

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The Clyde Hydrator

is the accepted standard of highest efficiency, economical operation, positive results and general all around serviceability in hydrating machinery

There are more of them in use than all others put together

They have proven their merit under all conditions
We will furnish full information, booklets and interesting data on your request

"We like to answer questions"

CLYDE IRON WORKS

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How Dollars Are Made

By Hydrating Your Lime

"THE KRITZER WAY"

Our little booklet on hydrating will tell you.

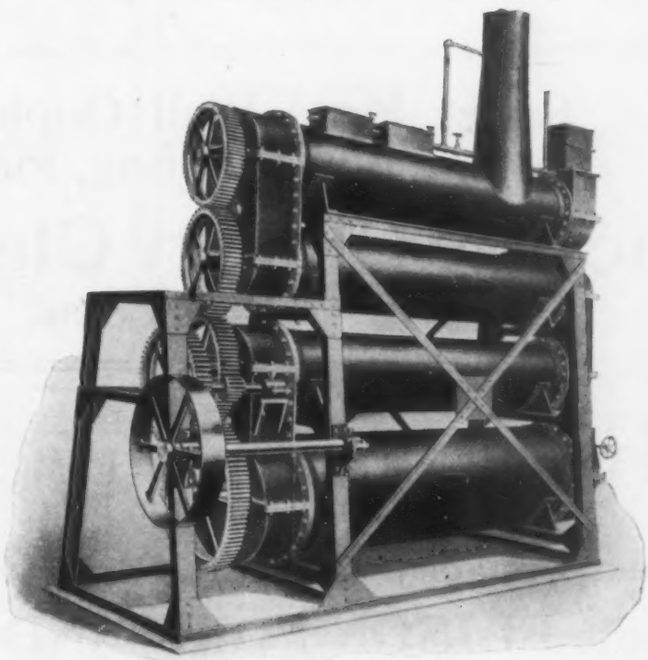
It is an interesting short story on lime.

Gives the reasons of the success and failures of hydrating.

Shows you how to judge the good hydrator from the bad.

Shows that a little money makes big money when invested right. Let our hydrating experts prescribe for your needs. Hydrating is a scientific operation. Manufacturers rightly demand, not merely a hydrator, but the most economical equipment that can be produced.

If you will write us your hydrating needs we will be glad to tell you the plant best suited to your particular requirements.



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Let Us Send You the Booklet. It's Free.

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CEMENT-KILNS

Lined with Our **BAUXITE** Lining Blocks

In hot zone and our special fire-clay blocks throughout the rest of Kiln can be run from three to four times as long as Kilns lined with the very best fire-clay linings. Write for booklet describing Bauxite Linings for Portland Cement Rotary Kilns.

Fire-Brick for Lime Kilns

We number among our customers many of the large Lime and Gypsum Manufacturers of the Country.

Sewer Pipe, Wall Coping, Hollow Tile
Fire Proofing, Flue Lining.

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THE WOODVILLE WHITE LIME COMPANY

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Largest Capacity of Hydrated Lime in the U. S.

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MANUFACTURERS OF THE

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Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

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For Cement Works, Lime Kilns, Cupolas, Steel and Iron Works of every description

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The sand capacity is immense. Produces a rich mortar with great spreading qualities. A saving of labor and material. Sold by all the best building material dealers.

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Noted For Its Quick and Even Slacking.

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DOES NOT DETERIORATE WITH AGE.

WILL NOT SLACK. ALWAYS READY FOR USE.

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Try us on your Portland Cement requirements

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LUMP LIME

ALSO, DIAMOND BRAND SUPERIOR WHITE FINISH

A HYDRATED LIME

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Capacity 4,000 barrels or 10,000 bushels per day. Capacity of Hydrated Lime, 120 tons per day. Our LUMP LIME as well as our HYDRATED LIME is the very best obtainable for all purposes for which a good lime is needed in erecting buildings. Our HYDRATED LIME is absolutely the best finishing lime on the market.

FOWLER & PAY,

Brown Hydraulic Lime, Austin Hydraulic Cement, Jasper Wall Plaster, Brick. Stone.

CEMENT WORKS: Austin, Minn.
PLASTER MILL: Ft. Dodge, Iowa.
WAREHOUSE: Minnesota Transfer.

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High Grade White Lime.

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Uniform Quality Finest Grain

The American Clay Machinery Co.

WILLOUGHBY, OHIO

May 16, 1906.

The Mitchell Lime Co.,
Mitchell, Ind.

Dear Sirs:-

Replying further to your favor of the 8th inst requesting us to advise you the result of practical test of your lime in the manufacture of sand-lime brick. We are pleased to advise you that the lime hydrated easily and the brick made from it were first-class in every respect.

We have forwarded some samples of it to Mr. Elkus of the Indianapolis Composite Brick Co. and he can probably advise you further.

Very truly yours,
The American Clay Machinery Co.
by W. J. Burke.

MITCHELL LIME COMPANY

MITCHELL, INDIANA

A. & C. Stone & Lime Co.

MANUFACTURERS OF

CRUSHED STONE AND WHITE LIME

TOTAL CAPACITY CRUSHED STONE 4000 TONS DAILY.

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The Kelley Island Lime and Transport Co.

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Tiger Brand White Rock Finish the best known and smoothest working Hydrated Lime manufactured.

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Special Designs for Special Purposes
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DAVENPORT LOCOMOTIVE WORKS
DAVENPORT, IOWA

Timber Hangers
ANCHOR STRAPS

For Wood, Steel or Concrete Construction. Special Hangers to suit any conditions.

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MACHINERY
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Industrial Plants

We manufacture machinery for transmitting power, and for elevating and conveying materials in and about cement plants, rock-crushing plants, lime plants, mortar works, plaster works, and other industries.

We manufacture screw conveyors, belt conveyors, and all sorts of chain and cable conveyors, for handling rock, lime, sand, etc.

We manufacture elevators, also, for handling the same kinds of material.

Our lines include shafting, couplings, bearings, collars, pulleys, gears, rope sheaves, sprocket wheels, elevator buckets and bolts, steel elevator casings, etc.

We have our own foundry, sheet metal department and machine shop. We employ first-class help in all departments and use high-grade materials.

When you are in need of anything in our line, try us.

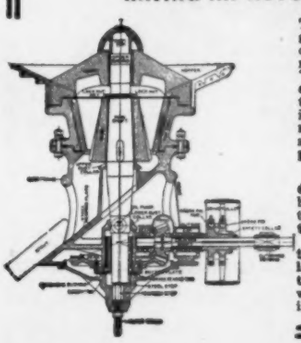
Catalogue No. 28.

H. W. Caldwell & Son Co.
17th St and Western Ave., Chicago

95 Liberty St., New York City
Woodward, Wight & Co., Ltd., New Orleans, La.

DRYERS
OF EVERY TYPE
CONSTRUCTED FOR ALL PURPOSES.
AGENTS FOR BISHOP WATER JACKETED FURNACE FRONTS
UNITED STATES DRYING ENGINEERING CO.
66-70 BEAVER ST. NEW YORK, U.S.A.

THE AUSTIN GYRATORY CRUSHER IS THE ONLY ONE HAVING AN AUTOMATIC OILING SYSTEM.



The **strain** on the **bearings** of a **gyratory** crusher is so great that if **dust** reaches them or if **imperfectly** lubricated they are certain to be quickly destroyed and the machine laid up for repairs. The bearings of the "Austin" are enclosed in a **double** chamber—**absolutely dust proof**—and are lubricated by a constant circulation of **live** oil forced through the main **eccentric** bearing—which is the life of the machine—by an **automatic** pump operated directly by the **gyratory** movement of the main shaft. The lubrication must be **perfect** because the flow of oil is **constant** and **positive.**

In all other **gyratory crushers** there is only the **discharge** diaphragm to separate the **dust** from the bearings and gears, and a side door opens directly into the chamber containing the **bearings.** Dust gets into this receptacle readily and destroys the **gears.**

Immediately below the crushing head, in the "Austin" is placed the discharge diaphragm with dust collar the same as in any other **gyratory** crusher. Below this partition is a **second** diaphragm also provided with dust collar around the shaft and a dust cap covering the pinion, contained in no other crusher, enclosing the bearings in a **double dust proof** chamber and making it **simply impossible** for dust to reach the bearings.

At the bottom of the frame in the "Austin" is an **oil cellar** which is filled with oil to the level of the center of teeth in the main gear.

An **automatic** pump draws **pure oil** from this cellar, forces it through the **eccentric** and counter shaft **bearings** and any oil thrown from the teeth of the driving gear is caught by the cap and carried back to the **cellar.**

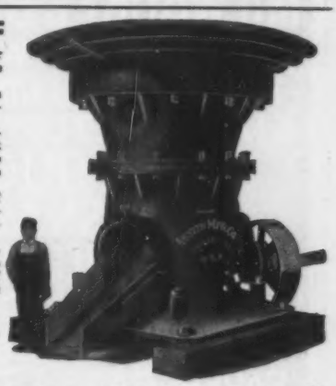
At the **bottom** of the cellar is a drain by means of which the **impure** oil can be removed insuring **absolutely perfect** lubrication because every part of the bearings operates **continuously** in a bath of **pure** oil.

One never has to expose the bearings of the "Austin" to **dust** when in operation. Fill the oil cellar to the required height and the machine **must** oil itself since no oil can **escape** from the oil cellar and therefore maintains a **constant** level.

Sizes for all requirements.

We are the world's largest builders of rock and earth handling machinery.

Catalogues of all departments on request.

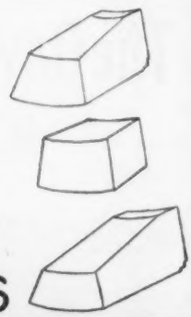


Austin Manufacturing Co. Chicago, U. S. A.
New York Office, Park Row Building

ROTARY CEMENT LINERS.

ASHLAND FIRE BRICK CO.
ASHLAND, KY.

IRONTON CROWN.



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GROUND CLAY FOR WALL PLASTER AND BOILER SETTINGS

DIRECT HEAT

DRYERS

—FOR—

BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.

All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

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62-64 William Street, NEW YORK CITY

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DRYERS

RUGGLES-COLES ENGINEERING CO.
NEW YORK CHICAGO

Cummer Dryers

See Other Ad. Page 59

THE F. D. CUMMER & SON CO., Cleveland, Ohio.

BRICK and MORTAR **COLORING**

After twenty years "CLINTON" colors still stand at the head. Get the genuine, with the "Little Yellow Side-Label."
CORRESPONDENCE SOLICITED.

CLINTON METALLIC PAINT CO., CLINTON, N. Y.

MILWAUKEE BAG CO.
MILWAUKEE, WIS.
HIGH GRADE PRINTERS & MANUFACTURERS OF
DUCK, OSNABURG AND JUTE CEMENT BAGS.
DEALERS IN
PAPER BAGS & TWINES.
WRITE FOR PRICES & SAMPLES.

J. K. WILLIAMS & CO.
EASTON, PA.
The Largest Manufacturers in the U. S.
BRICK AND MORTAR
COLORING
OF ALL SHADES
CORRESPONDENCE SOLICITED. SAMPLES AND ESTIMATES CHEERFULLY FURNISHED ON APPLICATION.

S. W. SHOOP & CO.
ALTOONA, PENNSYLVANIA
Designers and Builders of the
SHOOP IMPROVED PATENT LIME KILNS.
Designing and Installing a Specialty.

Lime Kilns and Plant of Blair Limestone Co., Canoe Creek, Pa.
Designed by
Henry S. Spackman Engineering Company
42 N. 16th Street Philadelphia, Pa.

ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.

DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume VII. **CHICAGO, NOVEMBER 22, 1907.** **Number 5.**

THE FRANCIS PUBLISHING COMPANY

EDGAR H. DEFEBAUGH, PRES'T.

Seventh Floor Ellsworth Bldg., 355 Dearborn St., Chicago, Ill., U. S. A.

Telephone Harrison 4960.

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ASSOCIATE EDITORS:

HENRY C. WHITAKER, Barre, Vt. BENJ. F. LIPPOLD, New York City.

Communications on subjects of interest to any branch of the stone industry are solicited, and will be paid for if available.

Every reader is invited to make the office of Rock Products his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

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In the Dominion of Canada and all Countries in the Postal Union..... 1.50

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Advertising rates furnished on application.

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PHILADELPHIA, PA., 319 Land Title Bldg.

Entered as second-class matter at the Post Office in Chicago, Ill.

Heavy demand for cement has practically closed for this year, and it has been a better average season than some are willing to admit.

Hard wall-plaster has won its leading position in modern specifications upon merits. Our people are always glad to pay for a good thing.

The feature of the sewer pipe industry just now is a general tendency to increase the size of the plant to provide for a bigger output next season. And it is needed.

Sand-lime brick have been produced in larger quantities in 1907, and every one of them marketed. Many times more could have been sold with ease. Greater output is needed.

Architects are taking a deeper interest in the study of concrete. Very few of them now are willing to admit that they ever had any serious doubts about its structural adaptabilities.

Vitrified paving-brick have been very short all the season. Twice as many as were delivered could have been sold. Many miles of street go unpaved all winter because of this deficiency. Wake up. Here's an opportunity for somebody to get busy.

The concrete engineers have made a great record this past season. If there were any doubts about the structural value of concrete they have all been expelled. The monthly record as shown by ROCK PRODUCTS covers every possible adaptation.

There are two dates for the cement user to remember:

December 16 to 21—The Cement Show at the Coliseum, Chicago.

January 20 to 25—The National Cement Users' Convention at Buffalo.

Big things will be doing.

Road contractors observe the indirect campaign of the automobile in their behalf with gratification. When the men of affairs need roads for a plaything it becomes easy for the farmers to get promptly what they have been waiting for all their lives. The road construction now being decided for next year's work is something stupendous.

The time is not far distant when hydrated lime will be the only form in which that material will be used. Lime putty as commonly used in the past and up to the present time secures to the user a mere approximation of the active element for which the material is purchased, while by hydration all the usefulness in it is brought out. It is the only way for the consumer to get all the value that he pays for.

Supply dealers are beginning to take things easy. It has been a prosperous season all the way through, in spite of this after-season talk. ROCK PRODUCTS told you so in January. Before the activities of another season come on it will be better than ever. We must all pitch in and pay court to Miss Prosperity if we would win and keep her constantly by our side. She likes to be appreciated and is easily frightened when knockers are around.

Employing plasterers in New York have had an association for several years which has enabled them to improve the conditions of their business, so much so that the plaster contractors of other cities have expressed a desire to join them, and an international association has been formed as a result. The plaster specification is the last thing undertaken in the construction of a building, and too often is there a tendency to cut it down to the last notch both as to materials and workmanship. There is certainly a big field of usefulness for this association, and every progressive plastering establishment should hurry up and give its help to the movement.

Idle Money Talk.

There has been more idle talk about currency stringency than there has been any warrant for. People who are accustomed to run to the banker every time they need accommodation, or every time they think they do, are making a roar when the banker in turn has a favor to ask of his customers. Currency has been called for in such prodigious quantities that the cash reserves are insufficient for a time to meet the demand, and the bankers put out accommodation paper of a sound and conservative character to prevent anybody from being inconvenienced. The clearinghouse checks will buy just as much as any other currency, and for a circulating medium meet every requirement for practical purposes. The very people who talk and argue the matter for the most part have no real interest or reason for doing so. It cannot be dignified by the name of currency agitation or criticism of the banking system. There is nothing to be excited about, for our banking system is all right. As soon as some other general topic arises for idle gossip to wag about this subject will pass into oblivion without anyone realizing how it happened, just like every other nine days' wonder gets to be common. If each fellow who wants to drop the matter will just settle promptly all the bills he can with whatever currency the banks offer, a whole lot of people will feel comfortable at once and proceed to do likewise. This holding up of payments is utter folly on the part of business establishments, for everybody is glad to get the kind of money that buys things. We should all be glad to extend the trivial accommodation to our bankers, especially when they shoulder all the trouble and responsibility themselves. Send us as many clearinghouse checks as you please. ROCK PRODUCTS will find no difficulty in putting them to good use.

Editorial Chat

One of the busiest men these days is Richard L. Humphrey, president of the National Association of Cement Users. This estimable gentlemen honored the sanctum of ROCK PRODUCTS with his presence on a recent hurry trip to Chicago, and advises that the Buffalo Cement Show promises to be a record breaker both in attendance and character and number of exhibits. Mr. Humphrey spoke briefly of the work now being carried on at the testing station of the United States Geological Survey at St. Louis, and stated that up to date there had been some 800 concrete beams made for test at the laboratory, of which very nearly 500 had been broken, the tests on which were at present in the hands of the authorities at Washington, and would be issued in a short time. The number of tests made by the St. Louis testing laboratory is quite in excess of the total number of test beams made to date by all the other testing laboratories in this country.

A visit to the office of the Marblehead Lime Company, in the Masonic Temple, Chicago, finds the most optimistic feeling prevailing. Mr. Howe, Mr. Newton and Mr. Bishop guide the destinies of the concern, and none of them are the least bit worried over the financial flurry. "This is a condition that should not exist," said Mr. Bishop. "The crops of the country are good and the country is full of money. There is no lack of business. At this time the building material trade always eases off, and we expect it. However, we have been getting good orders every day and are very well pleased with business. I believe every sound business institution is confident that no disaster will result, and we certainly feel that way."

Herewith is presented the likeness of C. M. Timmons, who recently joined the sales department of the Kosmos Portland Cement Company, Louisville, Ky. He is a young man of no small ability, born a Southerner, and knows the cement trade from several years of successful experience.

Everitt Hogle, secretary of the Illinois Masons' Supply Association, who is the manager of the National Lumber and Building Material Exposition, reports that the results of the preliminary work are very gratifying. Already several firms have contracted for space. Among them are the Marquette Cement Manufacturing Company, the Eastern Granite Manufacturing Company, Dolese & Shepherd, the German-American Portland Cement Company, the Lehon Company, the Marblehead Lime Company, the Chicago Portland Cement Company, the Garden City Sand Company, the Western Brick Company and the United States Gypsum Company.

A new ordinance is being prepared in Minneapolis to regulate the use of concrete work, either plain or reinforced. The ordinance as proposed provides that the Building Inspector may require the employment of an inspector for each building constructed if in his judgment the size or character of the work makes it desirable.

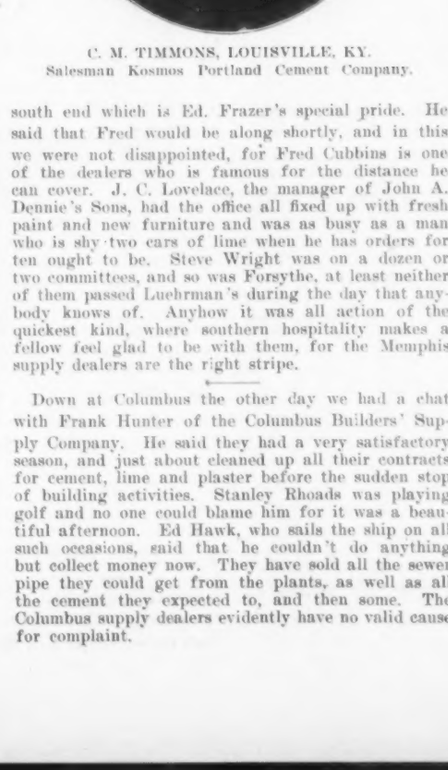
According to the Grade Crossing Commission of Niagara Falls, N. Y., it will take twenty years of work and $2,500,000 to abolish the dangerous grade crossings in that city. The work will be conducted systematically. Chief Engineer John L. Harper of the Niagara Falls Hydraulic Power and Manufacturing Company has been engaged by the commission to advise with it and go over the plans prepared for the work. The railroad companies affected have agreed to coöperate with the Niagara Falls officials in the work.

James M. Davis, a well-known building plasterer, died recently in Buffalo. He had been building for himself of late years. For many years he was a foreman in the employ of Henry Schaefer, building contractor of Buffalo. During the erection of the Pan-American Exposition buildings in Buffalo, he was a member of the plastering firm of Byrne, Bannister & Davis.

According to the report of the Bureau of Buildings and Combustibles of Rochester, N. Y., there was more building done in that city in the ten months of 1907 than was done in the entire year of 1906. In the ten months of 1907, permits aggregating $6,265,210 have been issued, as against $5,201,689 for the same months of last year and $6,175,499 for all of 1906.

Bert L. Surtt of the Lehigh selling staff has been working in the South for several weeks. He is a "Colonel" by this time and you can look for his regiment at the Cement Show.

It was the day that the President visited Memphis to give his assistance to the waterways improvement scheme, and of course ROCK PRODUCTS was on hand. It was a holiday occasion when nobody attends to business, and every dealer in town passed in review with Mr. Roosevelt. Fischer and his right bower, Fry, knew how to sing the song composed for the convention and taught it to every contractor in the town. Business has been good in Memphis this year, and they were a little shy of cement deliveries. Ed. Cubbins came along in his buggy and wanted to show us the new warehouse in the



C. M. TIMMONS, LOUISVILLE, KY.
Salesman Kosmos Portland Cement Company.

south end which is Ed. Frazer's special pride. He said that Fred would be along shortly, and in this we were not disappointed, for Fred Cubbins is one of the dealers who is famous for the distance he can cover. J. C. Lovelace, the manager of John A. Dennie's Sons, had the office all fixed up with fresh paint and new furniture and was as busy as a man who is shy two cars of lime when he has orders for ten ought to be. Steve Wright was on a dozen or two committees, and so was Forsythe, at least neither of them passed Luehrman's during the day that anybody knows of. Anyhow it was all action of the quickest kind, where southern hospitality makes a fellow feel glad to be with them, for the Memphis supply dealers are the right stripe.

Down at Columbus the other day we had a chat with Frank Hunter of the Columbus Builders' Supply Company. He said they had a very satisfactory season, and just about cleaned up all their contracts for cement, lime and plaster before the sudden stop of building activities. Stanley Rhoads was playing golf and no one could blame him for it was a beautiful afternoon. Ed Hawk, who sails the ship on all such occasions, said that he couldn't do anything but collect money now. They have sold all the sewer pipe they could get from the plants, as well as all the cement they expected to, and then some. The Columbus supply dealers evidently have no valid cause for complaint.

Cement blocks are being used in the rebuilding of the Ansco factory, which was recently damaged by fire in Binghamton, N. Y.

The Circuit Court of Appeals has rendered a decision in favor of the Alpena Portland Cement Company of Alpena, Mich., which was defending a suit for an alleged breach of contract brought by E. W. Backus, who is building a large water-power dam at International Falls, Minn., across the Rainy River. The contract provided for furnishing a large quantity of cement, the terms being that the company was to have thirty days' notice and within the season of navigation on the Great Lakes, in order that it might be sent by water. Some changes were made in the quantities wanted, and finally a demand was made late in the fall for a large quantity. The cement company refused to furnish it, because the required thirty days' notice before the close of the season of navigation was not given. A cancellation was made of the contract, and Backus afterwards sued for breach of contract. The court holds that the breach was upon the part of Backus and that the Alpena company fulfilled its part of the contract as far as possible.

Francis Von Der Lancken of the art faculty of the Mechanics' Institute of Rochester, N. Y., recently gave a lecture of interest to sculptors and others who have much to do with stone statuary. He said in part, in speaking of the history and growth of art: "The Egyptians believed that the spirit left the body and entered into the statue, and so long as the statue existed the soul would be preserved from annihilation. This gives perpetuity to Egyptian art. The portraits were made of the hardest substances and enclosed—in the case of rulers—in monuments of the greatest size and weight. Here we have the secret of the pyramids. The statues of people of minor importance were composed of limestone and other materials." The speaker said that most of the work on the statues was done by the use of instruments of stone.

One of the interesting announcements of the past month is that M. A. Bradley, a wealthy Clevelander who is a firm convert to the value of concrete construction and who has erected six of the largest concrete buildings in Cleveland, has had plans prepared for the erection of a sixteen-story concrete fireproof hotel on Prospect Avenue near Ontario Street. The building will cost in the neighborhood of $1,000,000. The Trussed Steel and Construction Company of Detroit, employing the Kahn system of reinforcing, have prepared plans for the new structure. It will have a frontage of about 140 feet on Prospect, with two wings running back about 70 feet. There will be about 400 rooms in the building as planned. A unique system of reinforcing has been introduced for the columns. The corners will be of right-angle sections of steel laced together with steel straps. The interior of this hollow post will be filled solid with concrete, several inches being bestowed on the outside for fireproofing purposes. The floors will be laid in the usual Kahn fashion. Many novel improvements are suggested for the new project, which its promoter hopes to begin next spring.

The only difficulty facing Bradley and his architects is the Cleveland building code, which provides that hotel structures may not be higher than twelve stories and that concrete buildings may not soar higher than six stories. The Building Inspector has examined the plans for the Bradley Hotel and says that as far as he is concerned the structure can be built, as it seems a good architectural proposition. Bradley will take the matter up with the board of appeals, consisting of the Mayor, City Solicitor and City Engineer, who may in the first place permit him to build a sixteen-story structure and allow of a concrete building in excess of six stories.

S. W. Emerson, building inspector in charge of concrete work, declares that if concrete buildings are allowed higher than six stories as at present, there will have to be a change in the system of building columns. At the present time these are reinforced floor above floor with steel rods joined loosely together with sections of gaspipe. Unusual strains might draw these rods apart, Emerson thinks. He says the code will have to be changed to provide that these rods must be welded or set together with sockets into which the rods screw firmly. Emerson declares that concrete failures are invariably traced to defective column work and that he is determined to avoid anything of that sort in this city. The present system of tying floors to the columns is said to be all right.

AMERICAN INSTITUTE OF ARCHITECTS.

The Forty-first Annual Convention of This Great Representative Body Makes Concrete Construction the Dominant Topic.

The forty-first annual convention of the American Institute of Architects was held in Chicago, beginning November 19, and the sessions continued for three days, ending on the evening of the 21st with a banquet. It was fitting that this representative gathering of a noble profession should be held in one of Chicago's noblest structures, and the harmonious surroundings of Chicago's magnificent Art Institute formed a most fitting setting to the distinguished body's deliberations.

The election of officers for 1908 was held on the 19th and the result was announced on the 20th, as follows:

President, Cass Gilbert, New York.
First vice-president, John M. Donaldson, Detroit.
Second vice-president, Wm. A. Boring, New York.
Secretary and treasurer, Glenn Brown, Washington, D. C.
Directors: Frank Miles Day, Philadelphia; R. Clipston Sturgis, Boston; Geo. Cary, Buffalo.

A remarkable feature of the convention was that two of the four special addresses on the program were on the subject of concrete and that the one committee report which attracted most attention and evoked the liveliest interest was also on this subject. It was the report of the standing committee on applied arts and sciences, this report being made in the form of a most able paper by Irving K. Pond, of Chicago, chairman of the committee. ROCK PRODUCTS presents the full text of this report to its readers in this number, as also the full text of the papers read by A. O. Elzner of Cincinnati and C. Howard Walker.

ARTISTIC TREATMENT OF REINFORCED CONCRETE

By A. O. ELSZNER.

The mere contemplation of this subject, so large in its scope and yet so little exploited, makes a writer feel like a traveler in a new land. It is hard to know where to begin and where to end; whether to follow the line of least resistance and make it a general or a detailed review of accomplished results, or, taking courage, to strike out boldly, discover motives, express opinions, and generally lay down the law.

The one course would scarcely be appropriate here, because it requires no combined effort. The other course is full of danger and, pursued alone, would consume too much time and invite too much criticism. Let us, therefore, take some of each with moderation, and see whether we cannot produce a monolithic structure, with a mixture of one part good fellowship, thoroughly seasoned and tested according to the Institute standard, two parts clean, sharp sand and four parts unscreened crushed hopes and ideals, wet-mix, and thoroughly tamped to place.

Above all, this discussion should properly be confined to concrete used structurally, having in view the possibilities of a constructive architecture rather than a mere application of structural decoration. Proceeding upon this basis, we may at once eliminate all consideration of concrete blocks and artificial stone, inasmuch as these products, being mere substitutes for brick and stone, and being used in the same manner, do not alter the status of our art, but leave it just what it has been from the beginning, a gravity architecture, if this term may be used.

The great antiquity of concrete as a building material would justify a search for early examples of its use in architectural expression. But apparently this remarkable material, which, after all, is only just beginning to reveal its ultimate possibilities, was used by the ancients only for the baser purposes of piling up masses of masonry, or at best as a backing for stone and marble facings. The first suggestion of its fitness for artistic expression came when the builders of the Renaissance undertook to construct their architectural features of cement mortar.

There is undoubtedly a great fascination in being able to mold a thoroughly plastic material as cement mortar into any desirable form, or even to shape it by hand before it sets up hard, and so produce creditable work of decorative sculpture. In fact this is being done rather extensively even at the present day. But one invariably suffers a genuine shock upon discovering that a thing is not what it seems, and that beautiful, stately colonnades or arcades and porticoes, well designed and in style, are not built of stone as one naturally expects to find them, but that it is all a sham; that we are looking at a thin veneer of cement mortar, which, at best, is but a temporary device, a sort of makeshift, calculated to mislead and deceive. But during this period of development, while architects were being led to adopt new materials, they did not concern themselves with the evolution of design in conformity with their new materials, and it followed quite naturally that no progress was being made toward the realization of a concrete architecture. In fact no attempt was apparently made in this direction.

It would be difficult to estimate the power or extent of Ruskin's influence in bringing about a restoration of truthfulness in design. While it cannot be said to have extensively affected immediate and tangible results, it did set men to thinking, and it is only in recent years, within the present generation, in fact, that this subtle influence is gradually asserting itself, and naturally bringing about a renewal of real, artistic inspiration.

It is hard to depart from beaten paths, and men, as a rule, will not and dare not, until some genius boldly cuts a new way. It is hard to give up the old familiar forms that have become a veritable architectural alphabet, which seems to most of us entirely sufficient for the expression of our ideals. And now that we have entered upon an area of concrete construction, and that too with a suddenness and determination that is thoroughly and typically American, we cannot reasonably expect designers to throw aside all tradition and make for a new style. This will take time. Nevertheless, they are gradually coming to recognize in concrete a material that will afford abundant opportunity for originality and individuality, and, accordingly, bold excursions have been made into the new fields with creditable results.

In looking about for inspiration, we may turn to a number of sources. There are, for instance, the picturesque Oriental mosques, with their domes and minarets, or the aristocratic old palaces of India so full of suggestions of all kinds.

But above all, we cannot well resist the inspiration of the charming Spanish missions of the Pacific Coast countries. Here we find an architecture which, though not of concrete, strongly suggests the same in its simple treatment of wall surfaces and openings. The designers of these charming buildings were fearless in departing from traditions. They frankly recognized the limitations of available materials, and, working as they did, under the greatest possible disadvantages, succeeded because they studied the possibilities and logical adaptations of their material. Fortified as they were with the true principles of art, in which they were thoroughly grounded, they produced practically a new style, which, however, sacrified nothing of quiet dignity and repose, and avoided the necessity of pitfalls of the new style of the present day, *L'Art Moderne* or *Art Nouveau*. Such is the spirit which should possess and guide the designer of concrete today.

Concrete as it is used in superstructures, being the

CASS GILBERT, NEW YORK.

Newly Elected President of the American Institute of Architects.

only kind which we are considering, is based upon the use of a small aggregate, about one inch and less in size, and mixed wet so as to make a solid, dense mass. This produces a soft, plastic material which should be mixed by machine to produce the best results. This, on the other hand, cannot be economically done unless large quantities can be used without serious interruption, and it follows naturally that such a structure is more or less perfectly monolithic in character, and at once this feature becomes the dominant note of the structure. Monolithic is freedom of joints or even semblance of joints. This idea should be expressed in our concrete designs and it should be the dominant characteristic. To accomplish this successfully, we should endeavor to treat wall surfaces in masses as large as possible. They need not necessarily be kept entirely plain, although this would depend upon the nature of the design. In cottage work and small buildings generally, such large plain surfaces are perfectly delightful, especially when given a rough finish. This can be accomplished in various ways.

First of all, the concrete may be left just as it comes from the molds. In this case the aggregate should be quite small, not over one-half inch, and the mix should have the minimum allowance of water, making what is called a dry mix. In doing this, however, there is great danger of the wall not being waterproof, so that, if possible, such a mix should be used directly against the forms and the balance of the wall made of wetter, richer mix and of fair thickness that will prove sufficient to be waterproof; or else this rich concrete may be used throughout and the forms removed before the final set, and the skin of the concrete removed with water and a good stiff wire brush, or with acid. Then again the concrete may be allowed to get good and hard and the surface tooled off. But with all such treatments there is always the danger, as first indicated, of having a damp wall, especially where it is not very thick, as is apt to be the case with reinforced concrete. Practical considerations, however, must finally govern, lest the unfortunate architect's life be made miserable by the complaining client, who naturally expects and is entitled to a dry wall. Under such conditions it is, therefore, advisable to plaster the concrete wall with a good coat of waterproof mortar and give this a rough finish by the various methods at hand, such as brooming or floating with a rough, carpet-covered float, or stippling, or pebble-dashing, or splatter-dashing, all of which methods are commonly understood.

The fresh mortar thus applied may be modeled by hand, producing some simple ornamental design, naturally in low relief.

Advocates of polychromatic architecture, too, have here splendid opportunities of using tile or faience, which may be applied to the surface with telling effect, provided that it is used sparingly, and entirely as a subordinate, so as to emphasize the character of the concrete and enhance its beauty and effectiveness.

In large, massive work the surface may be broken by raised or sunken work, such as panels or ornaments, cast directly in the concrete by applying reverse molds on the inner surface of the form work. Cornices and bandcourses, or other simple architectural features, may be fashioned in a similar manner, although in such work, if small members are used, the concrete should be mixed quiet wet, or else a rich mortar should first be deposited against the forms before the concrete is poured in; this would avoid the danger of honeycombing on the finished surface and the necessary patching resulting therefrom. Such mortar should be mixed with some waterproof compounds to prevent blotching or staining.

A recently introduced waterproofing material is a liquid solution of iron, which is applied to exposed concrete surfaces and soon oxidizes, turning to a beautiful spotted nut-brown, the familiar color of old iron rust. Such a treatment would be charming, if applied to a picturesque cottage; in fact, it might be used with good effect upon large wall surfaces in more pretentious work. In any event, it could be safely done with perfect propriety from an artistic standpoint.

However, it is not our purpose nor our province here to exhaust the subject of the proper or possible treatment of wall surfaces, nor to attempt to prescribe any definite or final formulæ or principles of design. We can only hint at them now, for they must finally be left to the slow but certain process of evolution.

To summarize, then, our subject of the "Artistic Expression of Concrete" presents to us two phases, the practical and the theoretical; the former just passing from its infancy to its childhood period, if such an expression may be permitted, and the latter being as yet in a decidedly nebulous condition. If we are to proceed on the assumption that a distinct individuality of style can ever be imparted to concrete construction—and this seems to be the substance of this discussion—then in reviewing the practice of this new art we must agree that the designers have proceeded too hastily, with too much lack of consideration, and that they are not doing justice to themselves or to the material in clinging so closely to the architectural forms that have been evolved by centuries of gravity construction.

On the other hand, in considering the theory, we cannot but feel much sympathy for such designers, for they are hard pressed by the extreme revolutionary character of our new material. Concrete, being structurally serviceable only in its reinforced form, implies practically monolithic construction, and its economical use compels the economical design of its members, and the consequent use of high unit stresses, many times in excess of those in brick and stone masonry.

It is primarily an emergency proposition, and while we are not wont to credit engineers with much artistic instinct, we must admit that they are doing much toward guiding designers to the path which will eventually lead them to a true concrete style. This is especially the case in bridge work. Hitherto they have struggled in vain to produce anything artistic in the design of steel bridges; but now they are reveling in our new material, and beautiful designs in concrete bridges are quite common.

In tall buildings, however, the advance has not been so favorable. The first tall concrete building employed concrete for structural purposes only, and no attempt was made to use it directly in the artistic expression. It was veneered, in fact, with marble, brick and terra cotta, and perhaps wisely so, for thereby many pitfalls of a new and untried all-concrete architecture were avoided. In other words, it virtually terminated the function of concrete to structural purposes as is done with steel, and by dominating its adaptability in this respect gave a tremendous impetus to its general adoption. Along with this movement went the common practice of using the external veneer and curtain walls, and architects seem very loth to abandon this method in favor of an all-concrete façade, largely on account of the many practical difficulties and uncertainties involved. Nevertheless, some serious attempts have been made to overcome them.

Possibly this may be pointing the way to a final solution of the perplexing problem of skyscraper design. Who knows? It certainly contains the elements of sound logic and common sense and is far more rational than the veneered skeleton method. But let us see what it means, not only in respect to tall buildings, but rather to concrete architecture, generally speaking.

As we said before, unit stresses are much higher; piers are therefore of necessity small in comparison with masonry walls, and floors are thin; doors and windows no longer require lintels, and roofs become monolithic with the walls. With one sweep, therefore, all our principles of a stable architecture are destroyed, and the design of our façades can no longer be based with consistency upon the familiar divisions of the classic column, which gave us the formula of base, shaft and capitol, perfectly balanced upon one another.

In fact, this new art of building fairly compels the abandonment of our beloved friends the classic orders, for they evidently do not fit in very well with the new dispensation. On the other hand, our clever designers are too thoroughly grounded in the classics and too much imbued with their spirit to follow with alacrity the call of the new order, and they refuse to take seriously the dictates and vagaries of the Nouveau Art.

Nevertheless, conditions are growing more favorable for the development of this style, and while there is as yet but little tendency in that direction in this country, some creditable work is being done abroad, and we practical Americans may be able to glean much good from such efforts.

It seems strange that we have been so very slow in this country to take up concrete for the construction of our houses. We certainly have not wanted for precedents. In fact, years ago, before concrete was scarcely thought of, Messrs. Carrere and Hastings, as you all know, constructed numerous buildings in St. Augustine, Fla., in which they used concrete made of the local coquina rock, very white and beautiful. Notable among these was the Ponce de Leon, a beautiful design in Spanish style. Another charming example was the Presbyterian Church at St. Augustine.

It is not altogether unlikely that the boldness of this departure, together with the practical difficulties of construction, and possibly the unusual delicacy of the detail in this work, were the cause of deterring architects from following such a lead. For, after all, simplicity of treatment is the real secret of the successful concrete design, and we may gain hope from the cement and plaster work which is being executed rather extensively in all parts of the country. In fact, much of this work might just as well have been executed in solid concrete.

The style is generally good and is finding favor with concrete designers, who are eagerly adopting it in much of the new residence and miscellaneous work, to which this is so admirably adapted that it appears to be the natural solution of this phase of our problem, and we easily recognize its influence in the best examples of recent solid concrete work.

Nevertheless, it is highly probable that our concrete architecture will carry with it for some time to come the practice of design in all current styles, or no style at all, and that if we would ever expect it to assume a really artistic expression—one that will have the true ring and will endure for all time, it will be found only in isolated examples, produced now and then by some genius with the divine spark, as is the case with all true works of art.

THE ARTISTIC EXPRESSION OF STEEL AND CONCRETE.

By C. Howard Walker.

The artistic use of steel and reinforced concrete is considered a new problem in architectural design.

Wherever a combination of materials which is somewhat new in character becomes usual by the number of its examples, there appears a desire to analyze its component parts, to make its architectural expression characteristic, to enroll it under *architecture raisonné*, and naturally to exaggerate its peculiarities in the process. The intention is excellent and admits of no contrary argument. What can be more undeniable than that architecture should express structure, and that unusual structure should demand unusual architecture? If any contention is at all possible, it can be merely in relation to the degree in which this construction is unusual, and, as a corollary, as to how unusual the architecture must be to express it. Is reinforced concrete new in the elemental factors of structure, and to what extent? Its main factors are vertical supports and horizontal loads (in which it resembles Greek structure), both of which are reduced in cross sections to areas less than in any other construction. It has no structural arch, though it has curved trusses or beams (in which it does not resemble Roman structure). It has continuous vertical factors with the horizontal factors inserted between (in which it resembles much of Gothic architecture), and it has horizontal planes in its floors which appear on the facade, in which it is in no way unusual. What are the differences, apart from the areas of its cross sections, between it and other structures?

Main Features of Structure.

First, it is made up as far as its vertical factors are conceived of slender piers; second, as far as its horizontal factors are concerned, by beams of great possible span; and both piers and beams are each homogeneous, not built up of separate blocks as in stone or brickwork, and therefore corbels are inconsistent. A reinforced concrete structure is therefore a pier and beam structure of slender supports and long spans, its intercolumniation being much greater than in any previous type of building, and from our constant association with shorter spans the beams seem weak.

Treatment of Main Structural Factors.

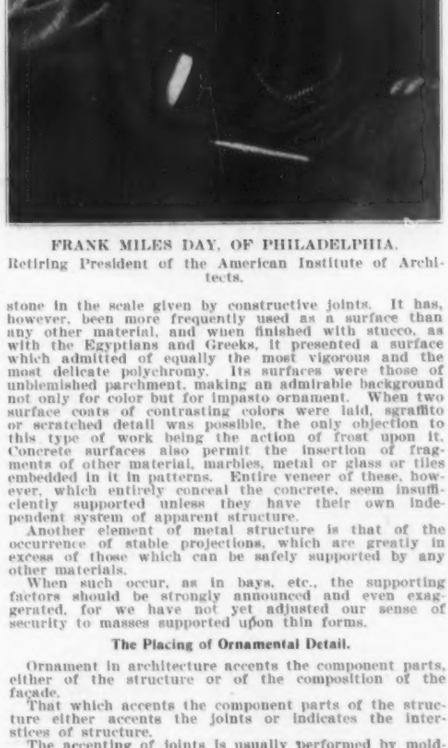
The openings between the piers are unusually large, the whole structure appearing to be slight and undeveloped. Up to this point the choice of treatment seems to be merely as to whether the continuous vertical supports shall be announced or the successive planes of the floors. The decision as to which of the two methods of expression shall be adopted depends entirely upon the location of the building and upon the proportion of its height to its width. Isolated buildings of great height may well be treated with long, vertical lines; but, in the majority of cases, the building requires a horizontal treatment, as it is associated with other buildings in the same block, and its assertion of vertical lines is overwhelmed by the length of the base line of the block. Also the vertical lines are ineffective in shadow, as they can have but slight projection, and as they are merely surface indications of interior structure and are not buttresses. Horizontal lines, on the contrary, always produce shadows. In most cases, therefore, the treatment of reinforced concrete buildings by horizontal lines announcing their floors (the distances of which apart are of much more nearly fixed dimensions than are the intercolumniation of piers or the height of verticals) is better in relative proportion to adjacent buildings, and affords stronger evidence of purpose than does the exaggeration of the verticals.

Treatment of Lintels.

The apparent weakness of the long lintel has been mentioned. This can be modified in several ways, either by crowning the center, which is of little value in long spans and is inconsistent with the concealed structure, or by arching the lower line of the lintel, or by bracketing at the piers. The cornice is capable of any treatment which does not suggest stone corbels or modillions. The next problem is that of the necessary filling treatment of spaces between factors of main structure of the openings between the piers and the successive floors. This is manifestly a screen only, whether of plain surface or of fenestration. It supports nothing. Its structural requirements are merely those of frames to openings and of surfaces between these openings. As its structure is unimportant and can be done in many ways, there is no reason that it should be announced than that the palm of a man's hand should announce the bones beneath. The anatomical structure of the building is adequately recognized when the piers and lintels are acknowledged; in fact, it is not necessary even in *architecture raisonné* to even announce them, provided they are not contradicted.

The suggestions for this secondary treatment of curtain walls between main structural factors may either be derived from minor structure or may be surface ornament only. If from minor structure, it is probable that it will evolve into a system of slightly recessed vertical panels. As the vertical factors in the structure are usually more in number than the horizontal ones, and as these factors are slender the stiles of such paneling would be narrow. Vertical paneling, whether of the type of perpendicular Gothic, or the panels with modeled or mosaic borders of Byzantine work, or the renaissance paneling of Fra Giocondo, are all suggestive of possible treatment. The frames to the openings can be treated like any frames, either simply or elaborately, as they are simply borders confining spaces. If, on the other hand, the surfaces are not to announce the minor structure, they may either be plain or have surface ornament, in the form of all-over patterns, low relief, mosaic or sgraffito, care being required only that the scale of the pattern or relief shall not be so great that it cannot be apparently readily carried by a thin wall. Deep reveals and soffites are necessarily artificial and not expressive of the structure, and the contrasts of light and shade usually obtained by these may be either produced by modeling or by coro, or both.

The basis of the structure is metal, which is concealed and protected in all important structural parts of the building, but can readily be announced in the openings, by grilles or delicate metal fenestration. Excellent opportunity and great latitude in design are possible therefore in the subdivision of the openings, either in cast or wrought metal, such detail being an admirable contrast to the other type of ornament of the concrete. The concentration and elaboration of grilles at the top of openings has numerous prototypes in all styles of architecture. Because metal is capable of long, sinuous curves, it is by no means essential that minor detail should adopt such an initial scheme and become thereby too important and out of scale with the other proportions of the building. The main surface of a reinforced concrete building is of concrete, a material which is homogeneous, has no joints and is actually a thin skin to the structure, but sufficiently thick to cover and disguise the joints of the structure. It is inferior to most stone in vivacity of surface texture and to both brick and



FRANK MILES DAY, OF PHILADELPHIA.
Retiring President of the American Institute of Architects.

stone in the scale given by constructive joints. It has, however, been more frequently used as a surface than any other material, and when finished with stucco, as with the Egyptians and Greeks, it presented a surface which admitted of equally the most vigorous and the most delicate polychromy. Its surfaces were those of unblemished parchment, making an admirable background not only for color but for impasto ornament. When two surface coats of contrasting colors were laid, sgraffito or scratched detail was possible, the only objection to this type of work being the action of frost upon it. Concrete surfaces also permit the insertion of fragments of other material, marbles, metal or glass or tiles embedded in it in patterns. Entire veneer of these, however, which entirely conceal the concrete, seem insufficiently supported unless they have their own independent system of apparent structure.

Another element of metal structure is that of the occurrence of stable projections, which are greatly in excess of those which can be safely supported by any other materials.

When such occur, as in bays, etc., the supporting factors should be strongly announced and even exaggerated, for we have not yet adjusted our sense of security to masses supported upon thin forms.

The Placing of Ornamental Detail.

Ornament in architecture accents the component parts, either of the structure or of the composition of the façade.

That which accents the component parts of the structure either accents the joints or indicates the interstices of structure.

The accenting of joints is usually performed by moldings, or by concentrated spots, such as rosettes and capitals.

The indication of filling of interstices such as tympana, spandrils, panels, etc., any of which could be removed without jeopardizing the structure, is usually by ornamental patterns.

The ornament which accents lines of composition is usually on vertical axes, and is of specially designed spots, such as keystones, cartouches, exaggerated corbels, etc. This latter type is used sparingly or is absent in the best architecture of all styles, excepting when it is in the form of pinnacles, canopies and heraldic scutcheons, in which case it has an individual purpose in addition to that of mere accent of vertical axis.

The position of ornament in reinforced concrete is not different from that of any articulated structure, but there are larger interstices, that is, larger surfaces of non-supporting wall; therefore it is not inconsistent that these surfaces, if ornamented at all, should be more generally ornamented than in stone buildings. But there is no necessity or object in suggesting clasps, straps, bolt heads and other small metal details in the covering of the metal. Nor is there any object in making the ornament thin and tenuous, because of that quality in the skeleton. A man with small bones need not have slits for eyes and mouth.

The general effect of reinforced concrete structure is that of lightness, of delicacy. Its moldings and ornaments should correspond in character. The chief problem is to prevent an effect that is trivial and that lacks stability. The only method by which slender structure and delicate detail can be made vigorous is by contrast of simple surfaces with massed detail. In this case the simple surfaces are over the structural factors and the curtain walls; and the massed detail is associated with the openings and possibly with the cornice. Wrought metal grilles and balconies, elaborate fenestration, polychromy and surface modeling (both focussed), all afford opportunities for the embellishment of a system of structure which is devoid of large piers, deep reveals and heavy shadows. All are in accord with such structure and it is unnecessary to search for more sensational factors of expression. A reinforced building is very apt to express itself tolerably well if none of the architectural detail applied to it is in imitation of stone, brick or wood forms, if its metal ornament is wrought and its concrete ornament plastic or mosaic or painting. It presents but one new problem, that of making a thin thing as attractive as one with mass. As a matter of fact, solidity of mass enters largely into our feeling of permanency and stability, and it is probable that no large skeleton structure can ever compete with one having liberal third dimensions. Its character is that of lightness, which has always been associated with impermanency, but that quality accepted, as it needs must be, much can be done to make it attractive without inventing combinations of forms which are uncalled for and which in themselves have no intrinsic value.

One of the constant criticisms of Roman architecture by instructors in architectural design is that the orders were used by the Romans merely as an ornament applied to the face of the construction. Partly engaged columns and pilasters which are not needed to indicate piers are amongst the examples cited of this solecism in design. Steel and concrete structure can, however, be well expressed in this manner, the engaged column often following literally the support within it, and the entablatures indicating the deep girders. It is, of course, unnecessary that either the caps or the moldings of the entablatures follow classical or other precedent, excellent opportunity being afforded for variants suggested by the relative proportions of beams to lintels and of both to the facade. Original capitals especially may be suggested by the bracketed forms at the tops of vertical supports and may be of as simple geometric type as are many of the Mohammedan capitals. The sole reason that well known styles are cited in connection with the possible treatment of steel and concrete forms is as a means of explanation of the character of the forms which may naturally be developed from the structure.

The design and ornamentation of the interiors of steel and concrete structures, in which the steel is covered, is not unlike that of any structure of columns, slender piers and beams.

In the cases which at times occur where protection from fire does not demand that steel structure shall be covered, and in which exposed steel is largely in excess of accessory concrete, the problem of artistic treatment becomes of a different character. Such structures are armory and large hall arched trusses, bridge spans, etc., i. e., either straight or curved trussed beams. These are especially interesting in elevated railway structures and elsewhere where they are so frequently and continuously conspicuous, and where they are in this country so persistently made utilitarian only, with but little attention paid to the possibility of subtle line. This is all the more to be deplored from the fact that metal if scientifically related in its form to strain and stress takes naturally some of the most delicate and subtle curves possible, but the custom, because material is cheaper than labor, is to erect structures assembled of straight lines only, with the occasional use of curved lower members. This is the principal reason for the apparent crudeness of steel structures. They are articulated structures, built up of component parts bolted together. The interstices are larger in area than the factors of structure, and the structure has therefore a latticed cobweb effect. Its satisfactory appearance depends entirely upon the design of the cobweb.

The lines of the main factors of the trusses can have the spring and curve which are so charactertistic of metal under pressure while the minor factors of struts, rods, braces, etc., may be assembled, so that certain combinations repeat and others indicate design and their silhouettes may be studied. For a steel truss structure inside its main lines is effective by its silhouette alone. In many cases the mere multiplicity of parts is detrimental to scale; the perpetual crossing and recrossing of lines being more suggestive of wreck than of safety. So much is this the case in parallel bridge trusses that covering the structure or filling the interstices of the two outside trusses is at times advisable to give apparent stability to the span.

REPORT ON APPLIED ARTS AND SCIENCES.

By Irving K. Pond.

Although the exact relationship existing between concrete and steel reinforcement under a given condition is yet to be accurately determined, and the structural use of reinforced concrete is yet to be reduced to an exact science, and although the manipulation of concrete and its application to structural uses has not as yet become an art, yet the fact that in its use and treatment there are immense scientific and esthetic possibilities brings the subject of reinforced concrete well within the field of study of this committee, especially at this time when the general topics of steel structure and concrete reinforcement are before the Institute for discussion. It is essential throughout such discussion to keep clearly in mind the true and abiding status of architecture and the architect. The architect is not a mechanical fabricator of mathematical diagrams. His highest concern is with the ideal, and his first sketch should present an

Continued on page 27.

Quarries.

Good Roads The First Requirement of Progress.

As regular as the crocus blooms in the spring, there comes every fall a crop of wiseacres who agitate the ancient proposition of building roads by convict labor, as if it were a new discovery. The Pharaohs in Egypt, 2500 years B. C., heard the same kind of arguments; the Cæsars of Rome at a later period tried the plan out to a finish, and the Czars of the Russias in modern times pursue the same phantom. In this country for a period of fifty years or more the farmers of every section were penalized for so many days each year to labor on the State or county roads, as the case might be. Indeed, in some of the States this law of compelling every ablebodied man in the county to work on the roads for a brief period every summer still obtains, but it is more or less of a dead letter as far as any serious effort is concerned. Beginning with the first attempts, the results obtained are surprisingly uniform; that is to say, all the roads that have ever been constructed under duress of penal servitude are extremely difficult to discover, and if by chance a small stretch of public road constructed in this way should be found it would take an expert to discern its lineaments.

The roads of the South, built with negro slave labor, are notoriously bad, and do not compare with the quality of Northern roads made with paid labor. This comparison holds as a rule even when the local materials for road-making are of a much better quality in the first case.

Roads are the arteries of civilization. Perhaps there is a fatality attached to the thing which prevents the march of progress from being accomplished by means of the degradation of the human family in enforced servitude. At any rate, from the ancient Pharaohs to the modern Czars there have never been any visible results, and the country roads of America are as bad or worse.

Such roads as have come down to us from ancient times were built by capable military engineers and by the efforts of armies of enthusiastic conquerors building the material paths to victory and glory and conquest and spoils. Such men were proud of their calling and worked with the ardor of emulation in the expectation of great reward. Of course the roads they built will stand forever as the patterns of perfection.

The road question, as far as this country is concerned, is one that each generation is inclined to pass on to posterity. Selfishly the individual sees that he can only enjoy the great improvement of good roads but a few years, and the expense looks huge indeed when one looks at the short duration of human life as compared to all the future usefulness of a road-building undertaking. It is clearly a matter for government to undertake, and as posterity will get an enormous percentage of the benefits, it is just and honorable to put such portion of the payment for the needed improvement where it belongs by long-time, low-interest-bearing bond issues pending upon a low rate of taxation on the realty benefited. This whole system is already well understood and needs no review here, and further it is a plan upon which sooner or later all the real permanent road improvements of the country will be accomplished.

There will never be any good roads built by convicts, nor will there ever be any net profit to the public in road materials produced in penal quarries. Long before the rock-crusher was invented many of the older States condemned petty criminals to the rock-pile, where they "made little ones out of big ones" by hand with a stub hammer. The cost of every yard of this stone amounted to at least $1.50 net, calculating every item of expenditure upon a minimum basis. The rock crusher revolutionized all this with tons upon tons of product in a single day, and, further, a new industry was born when the crusher got to work. The best material yet known for road-building was placed within the reach of every prosperous community. Men had to learn the crushing business, and intelligent and economical quarrying has become an art. With modern equipment on the quarry floor, with portable tracks connecting directly with the crushing machinery at one end of the operation, and automatic delivery to the cars for delivery at the work, skill has largely taken the place of manual labor, so that headworkers, organized to operate ingenious mechanism, make big results instead of the unwilling tasks of incompetents.

Such organization of equipment and operators requires capital and brains, both of which are worth a price, and neither of which can be brought into action without just return. There is no longer any reason for postponing the building of good roads in this country. We are here to stay. This is not the temporary habitat of a nomadic tribe, but values created now will last forever, and road values are the first great asset of civilization. Let us drop once and for all this inane idea of trying to get something for nothing and take over road improvements as a serious reality. Crushers can be run as economically today as they ever will, and able engineers and capable road-builders will get the correct value of their services or go into some other line where they can find appreciation. The roads are worth all they cost when good materials and skill are employed in building them.

Clamoring for Good Roads.

MASON CITY, IA., Nov. 15.—The fact that Mason City is on the direct line to Omaha, Des Moines, Minneapolis and other large cities which use immense quantities of crushed stone has induced George Gabler to negotiate for a crushing-plant for his own use and for sale to other contractors. J. G. Melson also contemplates the installation of a crusher outfit on "Lover's Hill." Iowa and Cerro Gordo Counties are both clamoring for good roads, which will be quite an easy accomplishment with the necessary crushed stone right on the ground.

Continually Busy.

BELVIDERE, ILL., Nov. 9.—While open weather continues the Electric Stone Quarry Company is continually busy with its crushed stone business. One of the recent large orders is for street work at Sycamore, which they have about completed. The quantity required was twenty-five carloads, and the stone, not over one inch in diameter and smaller, was mixed with asphalt in lieu of sand, forming an excellent pavement, and one that will withstand the pressure of heavy traffic.

A Flourishing Industry.

HAGERSTOWN, MD., Nov. 7.—The most flourishing industry in this vicinity is the plant of the Maryland Quarry Company at Pinesburg, on the Western Maryland Railroad. The daily output of the quarry averages 600 tons; there are 100 men employed, and the quarry company has just made a two years' contract with the railroad company for all the stone that will be required for ballast.

The company owns a large tract of land extending to the C. & O. canal and containing an inexhaustible supply of stone. With the improvements contemplated this plant should soon rank as one of the largest of its kind in this section of the country.

New Crusher Installed.

BURLINGTON, IA., Nov. 18.—Crushed stone is now one of the specialties of P. W. Whitaker, who operates a stone quarry a mile north of West Burlington. Mr. Whitaker has just installed a crusher for the purpose of furnishing crushed stone for concrete and similar work. This will mean the macadamizing of Sunnyside Avenue during the early spring for a distance of two miles and will also help building operations, which have been delayed owing to the difficulty in procuring crushed stone in sufficient quantity from the Keokuk quarries.

Crusher Plant Changes Hands.

BIRDSBORO, PA., Nov. 13.—The crusher plant of the Birdsboro Slag Company, located at the No. 2 furnace of the Brooke Iron Company, has been sold by Rish Beaumont to James Yerkes, of Reading. Mr. Yerkes has been managing the operating department for the past two years and with his executive and business ability should make a success of the plant.

Labor Troubles and Car-Shortage.

NEW ULM, MINN., Nov. 16.—The quarries of the New Ulm Stone Company have turned out more stone this year since the crushers have been installed than in any year since they have been working. Manager W. C. Miller states that at least a third more business could have been handled this season, which started March 10 and has just ended, had not labor troubles, car-shortage and kindred ills tended to decrease ability to properly take care of the output. Exorbitant freight rates to both Sioux City and Chicago have made deliveries to each of these large consuming points practically prohibitory. The various State roads will be macadamized during the early part of 1908, which should make that season an extremely profitable one to the crushed stone industry.

A breakdown of the stone-crusher at the St. Paul quarries, near Shelbyville, Ind., has necessitated the cancellation of several rush orders for crushed stone.

The Fort Pitt Construction Company, of Pittsburg, was the lowest bidder for 21,000 feet of macadam road between Irwin and McKeesport, to cost $47,300.

Cable & Keller, of Elkhorn Mills, Ind., contemplate the installation of a stone crusher at their quarry in view of the demand for crushed stone in that vicinity.

The Fellers Stone Company has been incorporated at Roanoke, Va., to operate a stone quarry, produce crushed stone, etc. E. B. Fishburn is temporary secretary-treasurer.

Work is still progressing at the Blue Grass quarry, at Hop Hollow, near Alton, Ill. H. A. Wise, manager, has a crippled hand as the result of an explosion at the quarry last month.

F. W. Frewen, of Denver, has just been awarded a contract for two miles of macadam road between Cripple Creek and Victor, Colo., running through Arequa Gulch, at a price of $3,800.

The Lewisburg Stone Company, Eaton, O., has just installed one of the largest and most complete stone-crushing plants in that section. Everything is now in readiness for immediate operation.

Attorney Ralston has acquired thirty-two acres of the Harrison farm, in Franklin Township, near Columbus, O., including the old Foley Bros. quarry, and is organizing a company to work the same.

Fifty pounds of dynamite, placed on a boiler to dry, played havoc in the quarry of Frank Mohr, at Linden, about ten miles from Tiffin, O., blowing a portion of the machinery a quarter of a mile away.

W. E. Baldwin and Joseph Dunfee are the largest stockholders of the Canal Quarry Company, Syracuse, N. Y., which has recently placed a $50,000 mortgage on its property to raise funds to improve the quarry.

The Universal Crushed Stone Company has been incorporated at Racine, Wis., with a capital of $25,000, by W. D. Thompson, P. J. Myers and Nora E. Kearney. The company will operate a quarry at Ives.

Fred M. Walker is installing the machinery for the crushing plant of the Ozark Quarry Company, Ozark, Mich. E. H. Hough, of Ozark, will superintend the operation of the plant after it is completed.

Crushed stone has now assumed the position of such a valuable commodity that it is stored in bins at the city quarry, Rockford, Ill. The stone crusher has been stopped and the quarry closed for the season, and the crushed rock on hand has been put away for next season's delivery.

The Minnesota Flint Rock Company has been organized at New Ulm, Minn., with a capital stock of $50,000. The officers are: President, Albert Hanft, St. Paul; vice-president, Alwine C. Scherer; secretary-treasurer, R. W. Scherer, of New Ulm. Two crushers will at once be erected.

The Barnett & Record Company, Two Harbors, Minn., have just placed an order with the city rock crusher for 400 yards of crushed stone to be used in making concrete for the No. 6 ore dock. If this rock can be crushed at a satisfactorily low price, the contractors have an additional order of 6,000 yards of crushed stone which will also be placed with the city crusher.

Quarrymen in the vicinity of Buffalo, N. Y., have made a protest to the Public Service Commission in the matter of the 300 per cent increase in freight made by the New York Central Railroad from quarries to the water front. The former rate was 7 cents a ton, which has been increased to 25 cents a ton. One firm has a contract with the Government to deliver 45,175 tons of stone to the south breakwall, and its loss in freight rates will amount to $8,131.50, while another firm will lose $10,800.

According to the figures of the United States Geological Survey for the calendar year 1906, the utilization of limestone for furnace flux in the United States reached the total of 16,077,202 long tons, valued at $7,612,692, as compared with 15,387,891 long tons, valued at $7,004,265, in 1905. Pennsylvania produced 41.62 of the total value of the flux at an average value of 47 cents, with a total production of 6,396,765 long tons, as against 3,098,346 long tons produced in Ohio and 1,019,931 tons in West Virginia.

Lime.

The National Lime Manufacturers' Association

Meets Semi-Annually.

Peter Martin, Huntington, Ind.....President
A. A. Stevens, Tyrone, Pa. .....First Vice-President
W. B. Carson, Riverton, Va.....Second Vice-President
T. H. Fleischer, Sheboygan, Wis.....Third Vice-President
C. W. S. Cobb, St. Louis, Mo.....Treasurer
A. J. Whiteford, Toledo, Ohio.....Secretary

Official Organ, ROCK PRODUCTS

Where Lime Manufacturers May be Found.

If you should happen to drop into the Boody House at Toledo about 10 a. m. on December 3, or at the Fort Pitt Hotel, Pittsburg, on December 5, about the same hour of the day, you would likely meet a lot of the big guns of the lime industry in a flock. We have heard a rumor to the effect that these dates have been agreed upon with a view to holding informal meetings for the purpose of reviewing the past season's operations and discussing future prospects. The topics calling for special consideration at this time are as follows: The car-shortage; the advisability of shipping lime in burlap sacks instead of barrels, owing to the trouble in securing cooperage and the poor quality of same; the advancement in the minimum weight of lime when shipped in carloads, which has recently been forced on the lime manufacturers; and other matters of equal importance. We understand these meetings will be called in due time, and every manufacturer should attend.

Will Hydrate in Canada.

BELLEVILLE, ONT., Nov. 1.—Lucius E. Allen requests ROCK PRODUCTS to announce that he intends to organize a company for the purpose of producing hydrated lime in this district, and will equip with modern limekilns and hydrating machinery. He says: "I have investigated the lime situation in Canada pretty thoroughly, and I find that there are very few modern kilns and only one or two small hydrating plants in the whole Dominion. The selling price of crude lime from Toronto to Montreal has averaged for the past three years 25 to 30 cents per bushel of 70 pounds. The small amount of hydrated lime made commands a much higher price. Last year I submitted samples of limestone taken from this district to S. W. Shoop, of Altoona, Pa., who tested same and pronounced it to be an excellent limestone for limeburning, as it is very low in iron and makes a perfectly white hydrate."

Pioneer Hydrate in the Metropolis.

NEW YORK, Nov. 16.—William H. Caldwell, Jr., 1201 Simpson Street, who represents the Kelley Island Lime and Transport Company of Cleveland, Ohio, reports a very active season and says that the outlook is fairly good. Barring the fact that he has had considerable trouble in getting cars through lately, he has no complaint to make. The Kelley Island people have had remarkable success with their "Tiger Brand White Rock Finishing Lime," which is a hydrate, and one of the few hydrates sold in this market. The Manhattan Operahouse and the Astor Theater were both finished with the Tiger brand and were the first two big jobs in which this finishing lime was used. Since then it has been used in innumerable buildings, giving entire satisfaction and proving beyond a question of doubt the superiority of hydrated lime in certain classes of construction. Some of the leading plasterers in New York have made comparative tests, cost and labor considered, and are very well satisfied with the results, especially in plastering skyscrapers, where space in which to mix mortar is a big consideration. It spreads easier and requires less troweling than ordinary lime. There is no expense in building large mortar-boxes, as small ones can be built and carried from floor to floor and from job to job. Mr. Caldwell is a practical plasterer and used the Tiger brand on quite a number of jobs while he was in the business. He became so firmly convinced of its superiority that he decided to handle it in this market. He has succeeded in getting some of the biggest architects and contractors to specify it, and many of the largest builders' supply houses to handle it exclusively.

Expect to Put in Hydrators.

CHATTANOOGA, TENN., Nov. 1.—The Monarch Limestone Company has recently passed into new hands. The president of the new company is A. Pyron, the secretary being W. P. D. Moross. The offices of the company are in the James Building, and Mr. Pyron was very glad to have a call from ROCK PRODUCTS, as he has been an interested reader for several years.

The plant of the company is located at Hooker, Ga., on the line of the N., C. & St. L. Railroad. They have 50 acres of limestone land. They have splendid quarrying facilities at this place. The ledge now being worked is on the side of a mountain and 150 feet long. The kilns, of which there are two, are but a short distance away, and cars carry the stone from the ledge to the kilns by gravity. The tracks are built on a grade not too steep for a man to push the car back. They have about 6 inches of stripping. The stone is a 95 per cent limestone. A No. 5 Gates crusher breaks the stone, fluxing stone being produced in considerable quantity. During the winter they expect to add two more kilns to the equipment.

The lime used in the James Building, which is one of the finest in Chattanooga, and in fact in the South, was furnished by this company. They make what is known as the "Monarch" brand. Mr. Pyron says they have had an excellent business ever since the new management took hold. They are considering the installation of a hydrating plant this winter.

Reports Very Busy Season.

CHATTANOOGA, TENN., Nov. 1.—The Gager Lime and Manufacturing Company, whose offices are in the Chamberlain Building, said to a ROCK PRODUCT man when he called that they had had a very busy year. Just at the present time they are troubled with car-shortage, and, in fact, running but a few of their kilns. Their plant is located at Sherwood, Tenn., on the L. & N. Railway. They have eleven limekilns at this place, also a stone-crushing plant. Their stone is of an oölitic formation. It is very easily quarried and conveyed to the kilns and crushed. Their business is confined to the Southeastern States, and they have a large trade. Mr. Gager, the head of this company, is an old-time lime man, having been connected for many years with the lime industry in the States of Ohio and Indiana.

Burning Tennessee Marble.

KNOXVILLE, TENN., Oct. 27.—The Tennessee Marble Lime Company have their plant located at the quarry of the Ross Marble Company, on the L. & N. Railway about four miles from Knoxville, Tenn. They burn marble, which makes a splendid quality of lime. They have excellent facilities for drawing their stone. They take the top stone from the Evans quarry and the grout from the ledges that are now being worked. The pieces of stone too large to burn are sledged or dynamited, hauled to the kilns and dumped into buckets. They are then elevated to the top of the kilns.

The plant consists of four iron kilns with 102-foot stacks. The lime is all burned by coal. The fireboxes contain three eyes, into which the coal is shoveled. The fireboxes are on the platform above the floor, so that the lime is dropped into the buckets from the kilns and then hauled to the floor of the cooling-room before being loaded into the cars.

New Hydrator in Philadelphia.

The Knickerbocker Lime Company, Philadelphia, announce the successful completion of their hydrating plant, which has been under construction for several months. The Kritzer system is employed and gives highly satisfactory results. The plant is heated with steam and provided with hot and cold water and every modern accessory for expediting the operation of the plant. It is considered to be the finest plant for the purpose ever erected, as no expense has been spared to have every convenience as perfect as possible.

The New England Lime Company recently installed a rotary kiln at their North Adams (Mass.) plant with 65-horsepower engine, but find the power insufficient. An engine of 150-horsepower will be substituted, which is now being built by the Fitchburg Engine Company especially for this purpose.

The Riverside Lime and Stone Company, Chicago, has been incorporated, capital $30,000, to conduct a stone quarry business and to manufacture lime. Incorporators, James B. Tuthill, Louis C. Wagner, James E. Lill.

Doing Big Business.

NEWTON, N. J., Oct. 24.—At a meeting of the directors of the New Jersey Lime Company of Hamburg, N. J., A. A. Drake, recently treasurer of the Newton Trust Company, was elected treasurer and will assume his new office on November 1.

The New Jersey Lime Company has extended its business and plant within the last few years more rapidly than any corporation doing business in Sussex County.

IN THE PACIFIC COUNTRY.

BY A STAFF REPRESENTATIVE.

LOS ANGELES, CAL., Nov. 7.—For nearly twenty years Ferd Snyder of the Snyder Lime Company has been engaged in the manufacture of lime, beginning as an employee of the Union Lime Company, and, later on, engaging in manufacturing for his own account. He says that in erecting a lime plant the characteristics of the rock must be studied and the kilns built to burn the rock of that particular section. The next feature is to utilize gravity as a labor-saving proposition as far as practicable.

Proceeding, he said that every plant, in its initial stages, is more or less of an experiment, in the matters of quality and quantity of product and cost of production. From the time he began to have the care of a plant it was a constant struggle to overcome the various hindrances which turned up in the manufacture of lime, both in the working of the kilns and in procuring the right kind of fuel in sufficient quantity to keep the kilns going.

The first serious trouble he met with was from the hanging of the charge. This was overcome by making punch-holes on each side of the kilns above the furnace. Next there was trouble with regard to draft. This was remedied by providing stacks of about forty feet in height, equipped with hoods.

In making lime at a minimum cost for production, it is essential to utilize the entire heat units of the fuel used—it must all go into the kiln and rise through the rock. None should escape at the firebox. The values of fuels for limeburning are as follows: First, pine; second, cottonwood; third, oak; fourth, coal; fifth, petroleum—the last, however, can only be used in small quantity in combination with wood or coal.

The kilns at the Snyder plants at San Jacinto and Tehachepi are built 16 feet of steel jacket with 22 feet of brickwork and flare at the top. They are provided with cast-iron grates, the grate bars being 5 feet, with ample space for ash room underneath. The kilns are oval-shaped and provided with two fireboxes on one side and one on the other, which admits of reaching with heat the entire charge of the kiln as the rock settles down in it.

In the manufacture of lime, Mr. Snyder said the cost of repairs was a considerable item, and early in his capacity as manager he sought to reduce the expense to a minimum figure. One of the improvements he introduced was to have a double fire-brick lining in the kilns. The outside lining, when burnt out, is removed, leaving the inside intact, against which new brick is laid. It was feared that the charge would hang in the kiln when this plan was first adopted, but this did not happen, since dirt lodged and made a tapering shelf.

In using petroleum with wood, he provides a half-inch pipe which enters the crown. Distillate is used to thin the crude oil. When using oil with coal, he mixes it in—makes a "pudding" of it, he said. The operation of oil in this way effects an explosion, and the draft of the smokestack draws the heat through the rock.

For distributing their product, the company have a large warehouse in the city built expressly for handling lime. There is a driveway running through the warehouse from the street to the rear of the building. The floor, which is of asphalt, is raised so that it is on a level with the body of the wagons. Alongside of the driveway, Mr. Snyder has a light derrick which he put in as a labor-saving device. At the rear of the warehouse a switch track brings cars so near the door that a short skid-board admits of running the trucks to the cars, the floors of which are on a level with the warehouse floor.

Mr. Snyder says he frequently carries 2,000 to 3,000 barrels of lime in store and never loses any except in summer, and not much then. He said it is better to store lime piled up in bulk than in barrels. In his warehouse there is no limehouse or bin.

All the rock of this section is a high calcium carbonate containing about 10 per cent of moisture and 40 per cent of gases.

The Chemical Lime Company, of New Bern, N. C., has been organized to manufacture and sell lime and fertilizers. The authorized capital stock is $150,000, with $100,000 subscribed. The incorporators are Messrs. F. M. Simmons, C. D. Bradham, J. L. Farrior and L. D. Moore.

Cement.

Crowding the Mourners.

Our old friend the Panama Canal looms up every once in a while on the cement horizon. It started operations as the "big stick" for the promoter. Practically every cement company promoted during the last few years was "specially adapted to supply the millions of barrels of cement to be required for use on the Panama Canal."

The United States Geological Survey, following the establishment of the Government cement works for the cement used in the Roosevelt dam in Arizona, is now considering the establishment of a similar plant on the Isthmus. For limestone, there is an abundance of coral rock in the vicinity of Colon. For argillaceous material, mud from the Chagres River or the French canal, of uniform and desirable composition and in sufficient quantities, can be obtained and dried under cover. Samples of cement were made from the available raw materials with excellent results. One sample was made from coral rock and clay, a second from coral and rhyolite tuff, and a third from coral with a mixture of equal parts of clay and rhyolite tuff, with nearly uniform results in each case.

The three kinds of fuel available are coal and oil from the United States, and lignite in local deposits to be used as a gas producer. It is intended that the cost of packing the cement, quite a material item, will be eliminated.

This is simply a synopsis of a report of the United States Geological Survey in this connection, and is given for what it is worth.

The Month in Pertinent Paragraphs.

The Struthers Cement plant, in the vicinity of Youngstown, Ohio, has closed down to make some necessary repairs.

The Vindex Cement Company, formerly the old Reading Cement Company, of Reading, Pa., has shut down for the winter.

Ground has been broken at Wampum, Pa., by the Crescent Portland Cement Company for the construction of a plant with a daily capacity of 3,500 barrels.

The Bonneville Portland Cement Company, at Siegfried, Northampton County, Pa., is now in the hands of receivers, due, it is said, to "personal feeling arising out of the political situation in Philadelphia."

Now that the trouble is nearly over, the cement industry for the month of November presents the appearance of a big trial-balance sheet, with proper entries on the debit and credit sides, but, withal, a healthy showing of assets over liabilities.

The Alpha Portland Cement Company are now planning to build a canal 50 feet in width and three miles in length on the Delaware River, near Foulrift, in order to generate electricity for use in their plants at Martin's Creek, Pa., and Alpha, N. J.

Operations have been suspended temporarily at the plant of the Ajax Portland Cement Company, at Independence, Kan. This plant was being erected by the Westinghouse Construction Company, which no doubt accounts for the hold-up in operations.

In the Lehigh Valley the Dexter Portland Cement Company are now operating but four of their six kilns. Work has been suspended at the plant of the Bath Portland Cement Company, the Northampton Portland Cement plant at Stockertown has curtailed, the Penn-Allen mills at Bath are closed and the Edison plant at New Village, N. J., has reduced its force to the extent of about 100 men. This is due to the practically cost price at which certain companies have permitted their product to be marketed, compelling the older companies to meet these figures. The fall in values simply represents inability to gauge the market. On the other hand, advance figures from the American Cement Company of New Jersey indicate that the earnings for the fiscal year ending November 30 will show a considerable increase over those for 1907.

W. E. Waddell, treasurer of the Lumbermen's Portland Cement Company, has been appointed general manager, with offices at Chanute, Kan.

The Leach Cement Company, Oklahoma City, Okla., has been capitalized at $250,000. The directors are O. A. Nitcher, Okeen; E. I. Leach and J. C. Fisher, Oklahoma City.

Progress is reported on the construction of the new plant at Hagerstown, Md., under the supervision of Major F. H. Lewis, for the Maryland Portland Cement Company.

Adam Beck, formerly of the Mitchell Lime Company, is at the head of a new cement company to erect a third plant for the manufacture of Portland cement at Mitchell, Ind.

The Iola Portland Cement Company of West Virginia has been granted a charter at Topeka, Kan., with a capital stock of $4,500,000. This company is to construct a plant at Iola, Kan.

The Sandusky Portland Cement Company, with plants at Sandusky, O., Syracuse, Ind., and Dixon, Ill., have made a bond issue of $100,000 for the furtherance of their new plant at York, Pa.

The plans and specifications for the new plant of the Humboldt (Kan.) Portland Cement Company are now in shape for inspection of the building committee, and upon their approval work will likely be rushed through.

Fire wrought damage to the extent of $12,000 in the laboratory and storehouse of the Cayuga Lake Portland Cement Company, at Ludlowville, N. Y., the latter part of October. Reconstruction was commenced at once and is being hurried forward.

The Hunt Engineering Company, at Iola, Kan., have the kilns in place for the new plant they are erecting for the Hill cement concern, and expect to have the plant in running order by March 1, 1908, three months earlier than was originally contemplated.

The Hanover Portland Cement Company, Montreal, have placed the following contracts for the enlargement of their plant: Canada Foundry Company, for two 250-horsepower boilers, condensers and pumps; Kilmer & Pullen, Toronto, one 400-kilowatt generator; the Robb Engineering Company, Amherst, one 500-horsepower engine.

A thorough analysis of cold facts will bring out quite clearly that the present financial condition is very much in the nature of a cloudy, bleak day, and that, taking the good with the bad, even the most pessimistic can readily see that the cement business at least is simply in the condition of the healthy boy who is suffering from the attendant depression caused by his first vaccination.

While the imports of foreign cement into this country, according to the United States Geological Survey, were approximately 2,275,000 barrels for 1906, as against some 897,000 barrels in 1905, the greater portion of this increase in 1906 was occasioned by the demand created by the new constructions in and around San Francisco. A gaze into the future would seem to indicate that ere long foreign Portland cement for consumption in the United States will be relegated to the past.

While the big cement-producing plants of the East are to an extent curtailing their output, manufacturers in the far West have taken quite the opposite plan of procedure. This is instanced by the establishment at Tehachapi, Cal., of a plant which, it is claimed, will revolutionize the industry in the Western portion of the United States. The new corporation will operate under the title of the Tehachapi Portland Cement Company and its equipment is to consist of three large mills, the first of which will be erected immediately and should be in operation in about one year. As soon as demand warrants a second mill will be constructed, to be followed by the third, each with a daily output of 3,300 barrels of cement. Those interested in the new venture are Amon Moore, J. C. Meachem, Drew H. Dunn of New York City, F. H. Banks of Pasadena (an old Lehigh Valley cement man), C. F. Holland, E. E. Powers, E. S. Butterworth and Fred F. Sayers of San Francisco, C. A. Campbell, J. A. Chanslor and Carl Leonardt of Pasadena, and other large financial interests. The bulk of the cement to be produced by the new company will be marketed in Southern California and adjacent territory. In the last eighteen months more than 350,000 barrels of European cement, representing a cost to the consumers of about $1,000,000, has been landed at San Pedro, Redonda and Port Los Angeles, which consumption could readily be taken care of with first-class American Portland cement.

A cement plant with a capital of $500,000 is to be established near Hankow, China. The daily output will be 500 barrels. Even the staid old Orientals are becoming afflicted with "cementitis."

Robert F. Wentz of 1357 Turner Street, Allentown, Pa., contemplates removing to England the first of January. He will go to the Manchester Canal belt to erect a cement mill and will remain a year or two.

A meeting of the stockholders and creditors of the Great Northern Portland Cement Company of Detroit, Mich., was recently held in Toledo, O., for the purpose of reorganization. It is planned to have the plant in shape for producing Portland cement in the early months of 1908.

The Pacific Portland Cement Company's large plant at Cement, Solano County, Cal., has been turning out large quantities of cement since the completion of the large extension. Prices are now very reasonable, but, if there is no serious trouble from car-shortage, a good showing will be made for the year.

For the first time in its history the plant of the Standard Portland Cement Works at Naper Junction, Cal., was closed down early this month. Difficulty in procuring cars for shipment of the output is the reason advanced by the manager. W. J. Dingy is one of the principal owners of the plant.

Richard K. Meade, chemist and cement expert, and Clarence E. Kline, engineer of tests, is the personnel of the Meade Testing Laboratories, recently established at Nazareth, Pa., for the inspection and testing of Portland cement. Mr. Meade is the author of several well-known treatises on the manufacture of cement and is one of the foremost authorities on the subject in this country.

The San Juan Portland Cement Company has been increasing its force of men engaged in the construction of its large cement mill near San Juan, Cal. The financial arrangements were completed some time ago, and nearly all of the work is under contract. The stock-house has been completed and turned over to the cement company by the Humboldt Construction Company. The railroad to the quarry has been practically completed. The San Juan Pacific Railroad, which is controlled by the cement company's interests, has been completed from the works to Chittenden, on the line of the Southern Pacific, a distance of seven miles.

Meeting of Portland Cement Manufacturers.

The annual meeting of the National Association of Portland Cement Manufacturers will be held at the Hotel Astor, New York, Dec. 10 and 11. This is the annual meeting, and as there are quite a number of matters of importance that will come up, it promises to be very largely attended. On December 9, the day preceding this meeting, the sales managers will hold their preliminary meeting, looking toward the formation of a sales managers' association. All the sales managers in the country are invited. So far quite a number have signified their intention to be present. It is expected that practically every large company in the country will be represented.

"Pure White" Portland Cement.

Hammerstein & Denevelle Company, New York, are sole agents for the Berkshire White Portland Cement Company at 451 West Fifty-fourth Street. Mr. Denevelle says that this is a true Portland cement of pure white color and that it combines the essential qualities of great tensile strength and imperviousness to a rigorous climate. He says that his concern has made extensive tests and that they have demonstrated beyond a doubt that this cement will do all that is claimed for it. The output at the present time is comparatively limited, and as a consequence the price at which this cement can be placed on the market is necessarily high, but as it is unexcelled for certain uses, the demand has practically exceeded the supply up to this time. Preparations are being made on an extensive scale to enlarge the plant's capacity, and it is hoped that in the near future this cement can be produced in sufficiently large quantities to be placed on the market at a more reasonable figure. Mr. Denevelle says that in his long experience with white cements he has never encountered one that fully came up to all the necessary requirements until he found the present article.

Among the various uses to which it is peculiarly adapted are the following: Facing for concrete constructions and stucco, ornamental architectural forms, substitute for terra cotta work, white ground for terrazza and mosaic work, special sanitary plastering of all kinds, architectural landscape work, for setting marble and light stones or brick, and for plastering elevators and light shafts.

Plaster.

EMPLOYING PLASTERERS TO ORGANIZE.

A Great National Body to be Formed, with the Prosperous and Successful New York Organization as a Nucleus.

NEW YORK, Nov. 15.—The Employing Plasterers' Association of the City of New York was organized in 1905 and to-day boasts of an active membership of 76, all working in harmony to one end—mutual protection. The association has succeeded beyond the fondest hopes of the little band of fifteen, with Thomas J. Mannion at the head, who met two years ago. Their membership to-day comprises most of the leading plastering contractors, and it has accomplished much good for the trade in the short time it has been in existence. Its meetings are held at its own clubhouse at 74 West 126th Street, on the second and fourth Wednesdays of each month, and the executive committee meets every Monday at 4 p. m., when all cases and claims are tried. The officers are men of unquestioned integrity and their decisions have never been questioned by any architect or builder who has had occasion to appear before them. The association has a business agent or delegate who personally visits the various jobs in the interest of the association, and who up to the present time has collected close on to $5,000 for its members. If this was the only result that had been accomplished during the life of the association it would have been worth while, but this is only one of the many things which they have been able to regulate. The strength of any organization naturally lies in its membership, for, no matter how laudable the purposes of the organization may be, if the individuals do not take an active interest there can be no real success.

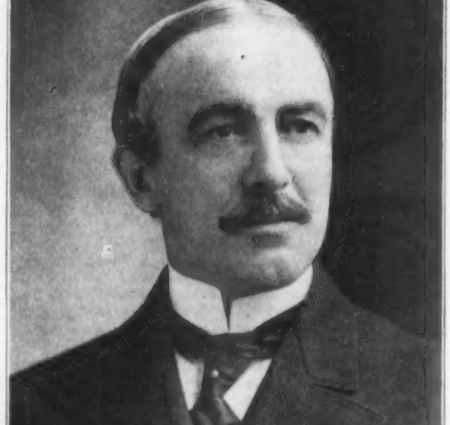
It can be said of this association that every officer and every member takes pride in attending the meetings and promoting its interests and the interests of its individual members. The architect and the builder have begun to realize that the E. P. A. means business, for not only has it exerted every influence toward raising the art of plastering and putting the business on a higher plane, but it has made it a point to see that all of its members do first-class work, so that membership in the organization is in itself a recommendation. It has come to be recognized that a member will live up to all of his agreements and give the builder a first-class job. Everyone realizes the importance of a high-class plastering job, as there is nothing that can destroy the value of a building so quickly as a poor job of plastering.

Thomas J. Mannion, the president, is one of the best-known plastering contractors in New York, and his strong personality and force of character have done much toward making the association the success that it is. He is a natural-born leader and forceful speaker and presides over the meetings with dignity and fairness. Mr. Mannion was largely instrumental in effecting the present organization and has been its president ever since its inception. His standing in the business community is unquestionable, and he has been a tower of strength. He was born in New Orleans and came to this city in 1887. While still a comparatively young man, he has been in the contracting business in New York for twelve years. He is a practical man, having learned the business from the bottom up, and can do a good day's work himself if it is necessary. He had the plaster contracts for many of the largest buildings which have been erected in New York, and has several big jobs in hand now. No plastering contractor stands higher with architects and builders. He takes a great interest in the association's welfare and is proud of its success. The same may be said of the other officers, all of whom have a high standing in their trade—Simon Greene, vice-president; John Waters, secretary; Joseph Van Note, treasurer, and John F. Niebuhr, business agent.

The association will hold its third annual ball and banquet at the Harlem Casino, 124th Street and Seventh Avenue, Monday, December 16. The committee of arrangements is composed of F. C. Lomonte, chairman; J. Waters, secretary; W. H. Caldwell and Frank S. Phelen. J. H. Babcock will be the toastmaster at the banquet. The committee say that they have several surprises to spring that evening. Several hundred people will be seated at the banquet board, and the menu will be most elaborate. Two bands of music have been secured, one for the banquet-room and the other for the ball. These annual banquets are the occasion of much good fellowship and are attended by the most prominent builders and material men, as well as the members of the organization and their wives. The committee have been besieged with requests for tickets, but as only a limited number are issued many will be disappointed. The Harlem Casino is admirably adapted for an event of this character, as it has a handsome banquet-room and a ball-room second to none in New York.

It is surprising that in this age of organization there is not in every city an association of the plastering trade like that in New York. Nearly every other branch of industry has its city and State associations in every section and at least one great national association. The plastering trade, however, is comparatively unorganized, although the need of united effort to conserve trade interests and to remedy abuses has been often felt. There are, it is true, a few local organizations of employing plasterers, besides that at New York, notable among them those at Cincinnati and New Orleans. All of these have done much good, but no doubt all of them feel that, while local associations are of great benefit, this benefit could be doubled by extending the good work to other centers through local associations and combining all these associations in one great national or international body.

Mr. Mannion and his associates have long realized this, and they took the initiative by organizing the International Employing Plasterers' Association, with



THOMAS J. MANNION, NEW YORK.
President International Employing Plasterers' Association.

the New York body as a nucleus, which is now about to extend the association gospel to every important center in the United States. To the end that this aim may be reached with the least delay ROCK PRODUCTS has been selected as the association's official organ and the trade will be kept advised through its columns as to the plans being formulated to extend the good work and the progress made.

The plans of the association are on broad lines and aim to include in one gigantic and unified organization all the reputable employing plasterers of the whole country and eventually even to extend beyond its borders. Much good has already been accomplished by the association in Greater New York, but the members here all feel the general extension of its sphere of usefulness will result in even greater benefits. The wider its field, the greater its power for good, not only for New York, but equally for all who take advantage of the movement. "In union there is strength," and what one local association may be unable to do even with great effort a powerful national organization may easily accomplish. A great union of mutual interests such as is contemplated will place the plastering trade on a plane commensurate with its importance in the industrial world.

There is much to be accomplished along these lines, and ROCK PRODUCTS has been asked to aid in the formation of local associations. Plastering contractors in the various cities in this country are requested to write to John Niebuhr, secretary, 74 West 126th Street, who will furnish a copy of the bylaws and constitution of the New York association and explain the methods by which they achieved their success. The International Employing Plasterers' Association have in New York mingled pleasure with their business. They have a handsome club-room for a meeting-place. This feature is one that it will be well to pattern after. Here it has been the means of bringing the best element in the trade together to great mutual advantage, and the social features of the organization have been found to be by no means the least of its benefits.

A Busy Concern.

CHATTANOOGA, TENN., Oct. 26.—The Howard Hydraulic Cement Company have had a very busy year. Their plant is located at Cement, Ga., and besides hydraulic cement they manufacture plaster. They sell a large amount of cement to different plaster mills in the South, and their agents, Seibel & Sons of Atlanta, Ga., dispose of a large quantity of hydraulic cement for building purposes. This cement is especially adapted for the mortar of brick work, marble, etc. They are furnishing the plaster for a few large buildings, one of which is at Birmingham, Ala., and the other at Anniston, Ala.

Have Large Plaster Contracts.

NEW YORK, Nov. 16.—S. Lester Williams, sales manager of the fireproofing department of the United States Gypsum Company, 1123 Broadway, has recently closed contracts to furnish their gypsum fireproof partition blocks for the following well-known buildings: Masonic Temple, Raleigh, N. C.; new insane hospital, Bangor, Me.; Ellis Hospital, Schenectady, N. Y.; Seneca Hotel, Rochester, N. Y. They have also closed recently contracts for furnishing the Linton Apartment House at Montreal, Canada, the largest structure of the kind in the Dominion. This order was filled by the Canadian Gypsum Company, a subsidiary corporation.

New York Plaster Plant in Operation.

CLEVELAND, O., Nov. 1.—Manager J. A. Kling of the Cleveland Builders' Supply Company announces that the plaster plant of the new Niagara Gypsum Company at Oakfield, N. Y., has been placed in operation and is preparing to turn out its full capacity, 300 tons, of plaster and gypsum products per day. The plant was erected at an expense of about $200,000. Mr. Kling is president of the company launching the new project, M. A. Reeb of Buffalo is secretary and W. K. Squier of Syracuse, N. Y., is vice-president. The main building at the plant is 265 by 65 and is fireproof. The entire concern is operated by electricity and every modern electrical device obtainable has been installed. A feature of the place is an electric railway a mile and a half long, running between the mill and the gypsum beds. The product of the new company will be shipped to all of the big cities of the United States and agencies are now being established. The capacity may be increased next year if business develops as expected.

Big California Plaster Mill.

LOS ANGELES, Cal., Nov. 15.—The Alpine Plaster Company, whose office is at 525 Douglass Building, and of which L. G. Newby is president and manager, has its mill at Palmdale, Cal., in Los Angeles County, about 68 miles north of the city of Los Angeles. They have been engaged in manufacturing their Alpine brand of hard wall plaster for over fifteen years. The capacity of the plant is about 1,500 tons per month. It is shipped in jute bags, 100 pounds to the bag.

Alpine is manufactured from pure gypsum from deposits owned by the company at Palmdale, on the line of the Southern Pacific Railway, and Mr. Newby says they are the only ones of the kind to be found in Southern California. At Los Angeles the company has a mixing and storage plant for the purpose of mixing fibers or retarders to suit the needs of their customers. The company's plaster was used on the following important buildings: The Lankershim Hotel, King Edward Hotel, Union Trust Building, Hotel Angelus, Stimson Building and Angelus Hospital. All these are of recent construction and among the finest structures of this beautiful city.

The Consumers' Gypsum Company, of Cleveland, has increased its capital stock from $60,000 to $75,000.

Gypsum is found in every county in Western Oklahoma. A report submitted some time ago by the Oklahoma Geological Survey estimated that the amount of material in its borders would approximate 123,800,000,000 tons.

A Busy Mill in Georgia.

ATLANTA, GA., Oct. 23.—The Georgia Wood-Fiber Plaster Mill, of which Charles L. Moore is the manager, have had an excellent business the past year. They have just furnished the plaster to the Woodward Lumber Company of Augusta, Ga., for the Bon Air Hotel at that place, one of the largest and best hotels in the South. It is located on Summer Hill and has 500 rooms. It is of old English architecture and has seven gables, with sloping roofs, and a 700-foot veranda surrounds it. It required 350 tons of wood-fiber plaster.

The capacity of the Georgia mill is 75 tons per day. They secure their gypsum from Blue Rapids, Kan., their clay and the other materials from Georgia. Recently Mr. Moore put in a Williams crusher to grind the rock and he says that he has been able to secure with this an increase of 40 per cent in their grinding capacity.

Mr. Moore is one of the youngest men in the business, being but 22 years old, and is in full charge of the plant, both the manufacturing and selling end. He is an ardent reader of ROCK PRODUCTS. He says that he never misses an issue and reads it from cover to cover.

The Big Cleveland Mixing Mill.

CLEVELAND, O., Nov. 18.—The new mixing mill of the Cleveland Builders' Supply Company is fast attaining its maximum capacity, which will amount to approximately 100 tons per day of a single shift. It is probably the best equipped plant of its kind in the country and with superior shipping facilities and ample storage capacity will enable the company to fill orders with utmost dispatch.

The mill is a substantial three-story brick and stone structure, 110x65, with two railroad switches adjoining it. A new dock of exceptional strength extending the full length of its river front has just been completed, and within the next few days a steam clam operating from a portable whirley will be installed, so that the supply of lake sand may be unloaded at any hour of the day or night that boats may arrive at the dock. The space between the mill and the dock is of sufficient dimensions to store enough sand to operate the mill continually throughout the winter. The mill is located in the central part of the city, which enables the company to make prompt delivery of all city business.

One feature of the plant that is most noteworthy is the dust collector installed at considerable expense, resulting in an almost entire absence of the dust ordinarily incident to such an industry.

Owing to their rapidly increasing volume of plaster business, the company has recently established it as a separate department and engaged Louis G. Powell of Toledo, O., as manager. Mr. Powell is favorably known as the pioneer hard wall plaster manufacturer in the Central States territory, his experience covering nine years in the Adamant and Diamond plaster business in Cleveland, from 1889 to 1898, and since that time he has been located in Toledo.

South Dakota Stucco Plant.

RAPID CITY, S. D., Nov. 10.—In a few weeks another industry will be ready for Rapid City. The Black Hills Gypsum Products Company has nearly completed its large stucco plant and expects to be turning out the raw product by January 1. The plant will have a capacity of two carloads a day of wall plaster, for which orders have been received in advance.

Gypsum Development in Oklahoma.

GUTHRIE, O. T., Nov. 4.—The gypsum, marl, fire-clay and gypsite fields of Blaine County will be developed by Eastern capital, a corporation having secured a charter under the name of the Oklahoma Gypsum Company.

The capital stock is $250,000, and the company's headquarters will be at Minneapolis.

The new plaster mill of the Roaring Fork Plaster Company, Ruedl, Colo., which represents an outlay of $100,000, is now in active operation. The first shipment of two carloads was sent out in October.

The Rice Wall Plaster Company, Dayton, Ohio, has changed its name to the Dayton Builders' Supply Company. Joseph E. Lowes is president and Howard B. Arnold secretary.

The Union Fiber Company of Winona, Minn., is making extensive additions to its plant, the latest structure being a fireproof warehouse. The foundation is of reinforced concrete, with corrugated sheet steel sides and roof. The building is 60x160 feet. This concern consumes over 30,000 tons of flax annually in the manufacture of Linofelt.

AMERICAN INSTITUTE OF ARCHITECTS.

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the ideal can materialize in but one or the other of two great manners: that of the articulated structure, unit added to unit, and that of the plastic mass. The most noble development in the first manner is in the architecture of masonry (brick or stone), and this development has reached its logical limit: in no way, except maybe in mere size, its least noble attribute, is it to be excelled. Under the vital art of this first manner lay an intuitive science; under the too transient beauty of the work of the second great manner lay nothing of science at all, and so this architecture has well nigh vanished except as some adherence to the principles of the first manner has interposed to save. And now comes the ghost of what might have been and calls for an incarnation, feeling (if a ghost can feel) that in reinforced concrete science is preparing a body which can be vivified with the spirit of art. If this feeling is substantiated, to the architect is opened up a new range of possibilities. The architect becomes in a sense a sculptor, a molder of monumental mass; not the fantastic figure who, at first with sharply insistent blows, and then with infinite persuasive tappings, releases the form imprisoned in the block, but a creative constructor who builds up his ideal and shapes it by the irresistible though tender molding of mass and form. In this the architect assumes no new function, but develops that feeling which by nature and of necessity inheres in the architectural mind. The architect as well as the sculptor revels in this feeling of mass taking form under his skillful manipulation; and the feeling for plasticity and for mass in flux is potent in the true architect, even though he be designing in that most refractory medium, a masonry-clad steel skeleton. In most of his work the architect has to content himself with an intellectual substitute for real feeling, and his conscious delight is rather intellectual than emotional as the idea takes form in the sketch and in preliminary plan and elevation. His fingers may itch—they do itch—to feel the flow of the mass, but the feeling remains abstract and intellectual. Therefore certain architects, if not indeed the architectural body general, are viewing with keen interest, when not actively aiding, the development of the possibilities of this fairly new and altogether plastic medium, reinforced concrete; a medium which really does flow and is molded and through which the form appears in gracefully unfolding stages, till the final mass stands revealed, a veritable unit. One cannot in thought connect with this materialization

IRVING K. POND, OF CHICAGO.

the shock of unloading beams, the rattling musketry of riveting, the petty and fussy application of fireproofing and surface coating. In fancy, as almost in fact, the architect sees the flowing mass take form under his own hands.

The masonry-clad steel structure of today is an architectural anomaly representing as it does rather a branch of engineering than of architecture; and it is doubtful if any treatment of the incrusting material, be it brick, stone or terra cotta, can make the structure architecturally interesting as compared, for instance, with the interest which attaches to a well designed brick cottage or stable, even. The steel structure, however, will continue to occupy its own domain. But the call of concrete is heard inviting architecture to occupy an as yet undeveloped territory.

Though the use of concrete goes back into antiquity, plastic architecture would seem to be in the veriest infancy and would seem also to be asking the genius of this age to give it perfect expression and make it worthy to stand with the architecture of the past and the yet-to-come. Though the past be examined for precedent little will be found. Rome used concrete in bulk, but undeniable evidence of a scientific use of the material is wanting. Rome employed masonry in bulk, but again evidence of a scientific use is wanting. Rome applied superficially the arts of other times and countries, but of itself left to posterity only monuments expressive of a highly temperamental force, breathing little or nothing of spirituality. Persia covered with stucco or veneered with beautiful tiles her masses of crude masonry. The Arabians and the Moors expressed their emotionalism in a plastic architecture decorated with a skim coat of ornamental plaster or an incrustation of tile, intricate in pattern and beautiful in color. The concrete of the mass was but mud, and the science of building was unknown. In such material beautiful day dreams were realized only to crumble when the spell was past. The Spanish missions were built with rare feeling for mass and light and shade; but feeling swayed and science did not guide. With the science of today to guide and the art experience of the past to illumine, into what logical, noble and beautiful forms should not concrete shape itself to the end of an enduring, spiritualized architecture?

In this study your committee has taken no cognizance of the concrete blocks, as a structural possibility, believing that such blocks, as well as terra cotta used in the same manner, are mere imitations of stone, and when used after the manner of stone are impossible in the architecture of sentiment, and like all imitations of one material in another are inimical to art.

The possibilities, even the esthetic possibilities, within the range of reinforced concrete construction can hardly be overestimated. Little beyond the introductory chapter has been written in the history of reinforced concrete, and every advance in the science of its manufacture and use will signal an advance along the lines of artistic application.

Except in well defined types, designed to serve certain well defined uses, it is impracticable so to carry masonry construction beyond and behind the façade as to result in a homogeneous structure—wanting which architecture becomes but a hollow sound. The architecture of a reinforced plastic material may and logically will express itself throughout the entire structure to the remotest core. The unity, the truth, the harmony of the whole may in every part be manifested. Therefore, again, the possibilities inherent in concrete present themselves alluringly to the architect to whom the art means as much as does the science of building.

The architectural brain is not so congested by the weight of pregnant thought that at a blow a Minerva shall issue forth full-fledged and full-armed. That is not the history of the evolution of an architectural style. It will take time and struggle and developed artistic perceptions in this, as in former cases, to reveal the possibilities of beautiful and of monumental design.

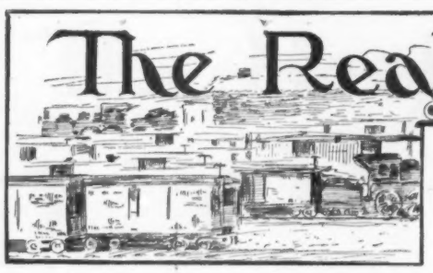
It may well be conceived that a molded architecture, so to speak, an architecture of flowing and harmoniously interrelated masses, may not appeal immediately to the architect who has been taught that his art consists in naively piling up child's building blocks on a large scale. Whatever may be urged against the deadly dulling practice of following the line of least resistance in architecture, certain it is that a material in which it is easier, as well as more logical, to fashion new and appropriate forms than to follow cut and dried conventions, cannot be regarded as other than a vivifying factor in a possible architectural development and its advent hailed with delight. When architects relieve themselves of the notion that monumental architecture, for example, consists solely in a row of classical columns superimposed upon a basement pedestaled, it will be a wholesome day for the art they profess to practice. Probably ignorance, inability and self-distrust in the architectural ranks will remove to some more or less remote future the development of a monumental architecture expressing itself in new forms fashioned in new materials. Yet it is possible that, in this, as in other ages, commercialism, itself so devoid of esthetic tendencies, will pave the way to the realization of an esthetic ideal. A material which holds in itself the qualifications for commercial use will in that very use reveal its esthetic possibilities. No material which puts into the hand of the architect power to produce permanent mass and form and add the enrichment of light and shade, color and texture, will long be ignored when science has made its use commercially possible. It would, then, seemingly remain only for science to demonstrate the practical value of reinforced concrete, in respect to its physical properties, and art must unfold whatever it holds of beauty.

The steel skeleton developed from commercial necessity, and to clothe and protect that skeleton the architect, naturally, used whatever means lay at his command; stone, brick, terra cotta and metal were called into requisition. To clothe the skeleton in one or another or all of these materials became a fixed habit with the architect. So that when concrete came into use not only was it ignored as a possible clothing for steel, but when the skeleton of reinforced concrete was set up it was itself clothed after the existing fashion for steel. Such is the fatal force of habit! Granting to concrete the qualities ascribed to it, that it is fire-proof, that it may be rendered moisture-proof, that once in place it is not affected by atmospheric and climatic conditions, that it can be permanently colored, can be molded and chiseled, that it can be formed in place and need not be applied piecemeal—what better material could be sought for clothing the steel skeleton—and why the need of any cloak at all to such material when it has been treated with any manner of decency or respect by the designer? So esthetically there would seem to be unlimited possibilities in reinforced concrete.

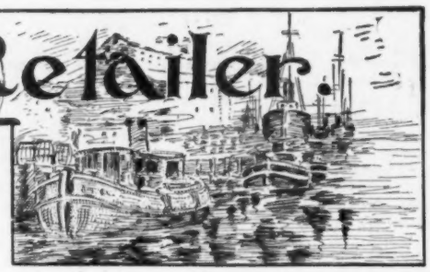
The preëminence of concrete for all manner of commercial work has not been established and may never be. The installation of reinforced concrete must proceed under favorable conditions of workmanship, moisture and temperature, and besides there must enter into the process an element of leisure which is now incompatible with the requirements of certain forms of commercial work. The erection of the steel skeleton, clothed after the established manner, can proceed independently of external conditions; and operations may begin, advance and terminate almost independently of the seasons, which thus will not seriously interfere with the uniform and rapid progress of a work of great magnitude. It is construction in wood, as well as certain classes of steel structures and of masonry building, that concrete seems destined entirely to supersede. But whatever conditions dictate the use of structural concrete, the esthetic treatment of the material becomes incumbent on the architect.

Although it has not been its purpose to study that especial phase, it seems to your committee that the esthetic possibilities inherent in terra cotta and faience as covering materials for the steel skeleton have not as yet been in the highest degree realized, while, as stated before, concrete as a possible covering has been ignored. Simultaneously with their development in the field already assigned to them, it is not inconceivable that ornamental terra cotta and tile, beautiful in color and texture, and also sculptured stone, will be called upon to embellish and distinguish though not in any manner to clothe or conceal the concrete structure. The presence of these materials may be needed as a saving grace in these early days of design in concrete, to save the designers from a too brutal conception of the forms they deem the material must necessarily take. There is an unfortunate though marked tendency now in what should be a refined and restrained domestic architecture to shape concrete and its lath and plaster imitations into the crude though characteristic forms of the old mission work. It is needless to say that these forms have no meaning outside of their original environment and would not have existed there but for the exigencies of the case—the crude nature of the materials procurable and the absence of all skilled labor.

But today with art and science coöperating it would seem as though architecture were on the verge of an awakening. Commercial architecture with us is beginning to feel the thrill. Abroad monumental architecture as well is showing signs of a renewed joy in life; and structural concrete, both of itself and embellished with richer materials, furnishes the new and seemingly adequate medium of architectural expression.



The Realm of the Retailer.



Scribo in Missouri. What the Supply Dealers of St. Louis are Doing. The Two Kansas Cities and Their Busy Material Men. Interesting Interviews with Rock Products Readers in the "Show Me" State.

Time was when St. Louis and Chicago were ardent rivals for fifth or sixth place among the big cities of the United States. I lived in St. Louis at that time and of course I wanted St. Louis to come out ahead—the "Future Great" we called the dear old town then, and we fondly hoped with poor old Reavis—L. U., that is—that some day Uncle Sam would set up his capital on the west bank of the Mississippi. Well, this was not to be. Chicago has taken second place and St. Louis fourth as far as population is concerned, but when it comes to building St. Louis is more than holding her own in proportion to population.

What Is Doing in St. Louis.

Skyscrapers are still shooting up and more are being planned. Great business blocks and warehouses are in process of erection. Dwellings and apartment houses are springing up like mushrooms and great schemes in local railroad terminal facilities and the new free bridge, together with plans for beautifying the city, are engaging public attention. The service of all this great and continuing development of the Mound City is the marvelous resources of the Southwest, which are steadily enlarging and which bring business to the city whose geographical location makes it the natural market and distributing center for all that prosperous region.

Among the concerns which share in this material prosperity is the Chas. W. Goetz Lime and Cement Company, the well-known supply dealers, who are also largely interested in the manufacture of lime. In talking with Mr. Goetz I found his company had furnished between 5,000 and 6,000 sacks of Acme cement in the contruction of the Ely Walker building, where 75 plasterers are at work, who are using ten to fifteen loads per day. The Goetz warehouse is on the Missouri Pacific system and cars enter their warehouse.

At Olive Street and Grand Avenue the new office building which is being constructed for the Metropolitan Life Insurance Company will require 600 barrels of cement for the fireproofing, which is being done by the Roebling Construction Company. Dave Miller has charge of the stone work and H. J. Tiefenbrunn of the plastering. The Westlake Construction Company are the general contractors. Mr. Goetz reports business in general as very good. Plenty of cement is being sold and they are running their seven kilns in the manufacture of lime to full capacity day and night. The shipping trade is quite satisfactory. They do not consider there is any overproduction in cement and prices are ruling steady.

The company has a hydrating lime plant at Ash Grove, built by the Clay Iron Works, and the Goetz estate is interested in the new Portland cement factory to be started at Chanute, Kan. The new company, in which W. B. Hill of Kansas City, president of the Ash Grove White Lime Association, is also interested, owns and has leases on 3,000 acres of gas land and expects to equip a mill equal to anything in Kansas. It will have a capital stock of $2,500,000 and begin with $1,500,000 working capital. None of the stock is on the market. The supply of shale is large and equal in quality to that of any other district in the state and, as Mr. Goetz significantly observed, the company will get the benefit of the experience of the other companies gratis. The flow of gas is about 70,000,000 cubic feet per day.

The Biggest Cement Handlers in the Southwest.

Doubtless the Hunkins-Willis Lime and Cement Company are the largest handlers of cement in this section, besides dealing heavily in lime and builders' supplies and specialties. The business was founded by Thorn & Hunkins in 1875 and incorporated as the Thorn & Hunkins Lime and Cement Company in 1889, which company was succeeded by the Hunkins-Willis Company in 1902. I was told by another large dealer that they handled upwards of half a million barrels of cement annually and he had no doubt but that sometimes they contracted for a round lot of 100,000 barrels. The company are constructing a lime plant at Mincke Station, Mo., about twenty miles west of St. Louis, which will be equipped with the most modern appliances.

The company has several warehouses of the principal railroads along the tracks in St. Louis, the largest, on the Missouri Pacific, near their office at Eighteenth Street, being about 500 feet long and 50 feet wide, and affording storage room for cement, white finishing lime, cement wall plasters, plaster of paris and plastering hair.

Big Kansas Portland Cement Company.

Besides being large manufacturers of Portland cement, the Iola Portland Cement Company handle at their warehouse, 436 to 444 South Theresa Avenue, Acme cement plaster, lime, hair and building materials. Here I met J. M. Bixler, Jr., resident manager, whom I found to be well stocked with information concerning what is going on in St. Louis and in this section generally. He produced a line of folders, fully illustrated, showing some of the buildings, bridges, factories, dams and sidewalks, in the construction of which their brand of Portland cement was used. These folders are a valuable aid in the sale of their cement, each being confined to a particular class of work, so that when a party writes for prices and other information the appropriate folder is mailed with the letter answering the inquiry.

The factory of the company is situated at Iola, Kan., and is one of the most complete in the country. The company owns 1,500 acres of lime rock, clay and gas lands. The capacity of the plant has within six years been doubled. Some of the natural gas wells have a capacity of about 15,000,000 cubic feet per day and the company engines, one of which is 700 horse power, are driven by a mixture of natural gas and air. It is also used to dry the material and to burn the cement. The company has its own water plant on the bank of the Neosha River.

Their St. Louis warehouse is located on the principal railroads.

St. Louis Limestone Quarry

The largest quarry the ROCK PRODUCTS man has yet seen in the Mound City—which, by the way, abounds in limestone quarries, since this formation practically underlies the entire city—is that of G. Eyermann & Bro., or, speaking more correctly, the South St. Louis quarry of this firm, since it operates others. In talking with John Hickelhun, the foreman, I learned that the quarry is over 100 feet deep. Gazing down the chasm, I spied a horse which is employed in drawing the cars to the derrick's tackle. This faithful animal, like the men, leaves the quarry when work is over for the day. Every day at 6 o'clock he proceeds of his own accord to his box, enters it and patiently waits to be hoisted to the surface for his evening repast, while the men leave the quarry on ladders.

The Eyermanns' steam power crushing plant does a large business in furnishing crushed macadam and limestone screenings to the trade. Being large contractors for municipal street work, they also require liberal supplies for their own jobs.

Haller Bros. operate a limestone quarry at South St. Louis. The quarry has reached a depth of between fifty and sixty feet and the output is mainly used for building stone (cellars and foundations) and macadam. The stone is raised by steam derrick in cart bodies, each load being about one and one-half tons.

Stone That Compares With Iron.

The Grafton Quarry Company, who have quarries at Grafton, Ill., about fifteen miles north of Alton, is represented in St. Louis by John S. Roper, secretary, whose office is at 606 Wright Building. Mr. Roper says that at present they are not shipping much stone to St. Louis, but there is some demand for crushed macadam and the company is equipped with two crushers. The business card of the company carries an extract from the report of Captain James B. Eads, builder of the Eads bridge (made thirty-seven years ago), in regard to a test made of a specimen of stone from the Grafton quarries, in which he states it is remarkably strong, the result of several tests showing better than 17,000 pounds. Captain Eads also found the modulus of elasticity of this stone to be about the same as that of wrought iron.

A "Bonanza" in Name and Reality.

A comparatively new industry is the manufacture of roofing tile made of reinforced concrete, a feature of which is that it renders roofs proof against fire, fumes and water. The trade name for this tile is "Bonanza" and the Hunkins-Willis Lime and Cement Company of St. Louis are the general agents for its sale. In talking with G. B. Kerwan, who has charge of the building material specialties department, I found that prior to assuming the business of putting the Bonanza roofing tile on the market the company made a thorough investigation and as this was satisfactory and leading engineers who had used the tile commented favorably upon it, they felt warranted in recommending it to their trade. The United States Steel Corporation, the American Locomotive Company, the Terminal Railroad Association and St. Louis and Republic Iron and Steel Company are among the forty big concerns who have adopted it.

A Big St. Louis Distributing Company.

"Well, what can I do for you?" was Colonel Cobb's breezy inquiry when confronted by the ROCK PRODUCTS man. I told him there were so many things he could do that I would spring them on him one at a time. At this sally Colonel Cobb endeavored to look resigned, for the head of so large a business as that of the Glencoe Lime and Cement Company has plenty of calls on his time. Speaking of the general situation, he said there had been some let-up in outside business in cement, partly owing to the curtailment of railroad construction and along back to some anxiety concerning the outlook for the crops, but as matters in that direction were tory and trade in lime and cement steady and continuous.

The company is the distributor of the well known Lehigh and Bedford brands of cement and as for lime, the plants of the company at Glencoe, about twenty-five miles west of St. Louis, are turning out ample supplies. The big warehouse of the company adjoining the office I found to be fully stocked with material and ready for immediate delivery of all kinds as wanted.

Kansas City, Mo.

St. Louis men in the building material line were hard parties to catch at leisure, but it is even worse in this hustling Western town, where, not having been favored by inherited wealth like many in the old metropolis of the valley, everybody is on the alert for making money. I find many men connected with the building material trade are officers in the Manufacturers' Association, Geo. H. Tefft, secretary of the W. S. Dickey Clay Manufacturing Company, being its president. This is the publicity bureau of the city on the Kaw. A peculiar experience overtakes one here. I did not note it at first, but I cannot recall ever having been in a city where so large a proportion of the persons of whom I inquired my way responded by saying they were also strangers or newcomers.

Howard McCutcheon, secretary of the C. A. Brockett Cement Company, whose office is at 121 West Eighth Street, informed me that their line of building materials was quite extended. The company are agents for the Iola Portland Cement Company's cement and they handle Ash Grove white and hydrated lime, Acme and Agatite cement plaster; also the United States Gypsum Company's, including their Ganitewood fiber plaster, Laclede-Christy firebrick, etc. The company was incorporated in 1873. They furnished material for the newly completed Long Building and are now supply contractors on the New England Bank building and the great structure of the Bank of Commerce; also a new building, stores and

offices, going up at the corner of Eleventh and Walnut Streets.

The Portland Cement Company, which was established in 1902, has an office and warehouse at Twenty-fourth Street and Broadway. In the absence of J. D. Bruce, the manager, I talked with N. H. Stone, who, I found, was a Chicago man. He told me they were the sole agents for the Fredonia Portland Cement Company, a new Kansas plant which started making cement about two months ago, employing the wet process in manufacture. In addition they handle Ash Grove common and hydrated lime and Texas cement plaster, fibered and unfibered, for which latter they are sole distributors. Mr. Stone said that it was usually used two-thirds fibered and one-third unfibered, with plaster of paris finish coat. They also supply a number of granitoid contractors with materials for this work, but their customers complain of the low prices at which they have to take these jobs, owing to excessive competition. The city is having a great deal of such work done, particularly in the public parks.

The Lynch-Watkins Lime and Cement Company have their office and warehouse at 1900 Walnut Street. They are the agents for the Kansas Portland Cement Company's cement and also handle Lehigh American Portland, Milwaukee, Fort Scott and Louisville common; also Agatite and Acme cement wall plaster, Marblehead hydrated lime and Laclede-Christy firebrick and fireclay. They report business as very good. They are furnishing all the Portland cement on the big new sixteen-story building of the Bank of Commerce. Speaking of Kansas City's slow progress in the concrete block construction line, Mr. Watkins said it was wholly a matter of carelessness or incompetency, and for this the sellers of machines were largely to blame, since with some salesmen the whole thing seemed merely to sell some one a block-making machine, deliver a lecture on the subject, which might or might not be worth listening to, and fly on to the next town to hunt up a new victim who would be told how simple the proposition was and how little capital it required—the machine, a shovel and a little cement, sand—concrete—there you are!

Talking with A. T. Cougleton, purchasing agent of the Badger Lumber Company, whose general offices are in the Postal Telegraph Building, I learned that the company has seven yards in the city and forty yards in Kansas and Oklahoma, mostly, however, in Kansas. The company was established in 1885. Besides lumber, they handle the Kansas Portland Cement Company's Portland cement, Ozark white lime from Fayetteville (Ark.), Acme and Agatite cement plaster, Dickey and Pittsburg (Kan.), sewer pipe.

According to Ed L. Roll of the Roll Coal and Lime Company, Kansas City dealers in builders' supplies are enjoying a good fall trade, of which he believes he is securing his share, since he carries a full line, and as the warehouse of the company at Twentieth and Main Streets is situated on the Belt Line, prompt dispatch for the unloading of cars is had and the expense of hauling saved. In discussing the effect of river service as a rate regulator, Mr. Roll said that, so far as heavy freight is concerned, it cuts little figure at present, owing to the comparatively small quantity handled by the boat line of this class of merchandise.

From Chas. P. J. Bryant, president of the Bryant Supply Company, during an interview with him at the office of the company in the fine office building bearing the same name, I learned they have a warehouse and yards at Twentieth and Forest Avenue and handle brick, lime, cement and terra cotta. The company are agents for the Indian Portland cement, made by the company of this name at Neodesha, Kan.; also for the Atlantic Terra Cotta Company of New York City, and Versailles (Mo.) firebrick. Some of their customers having large plants say that whereas they used to put in new firebrick about every six or eight weeks, they can now run with the Versailles for six months. The company also handle Ash Grove lime.

C. L. McDonald, manager of the Missouri Lime and Cement Company, whose office is in the Postal Telegraph Building, proved to be a hard man to get at. This, I learned, was owing partly to the fact that, being a Mason of high degree, he was busy so far as he could find time for it, in looking after arrangements for a meeting of the conclave. In talking with F. Polly, who, by the way, I fear will become roundshouldered in working on the big account books of the company, I learned that the specialties of the company are Iola Portland Cement Company's cement, a German Portland cement, Alsen, Ash Grove lime and the same company's hydrated lime, Acme cement plaster, Dickey's sewer pipe, Evens & Howard, Fulton and Calhoun Brick and Clay Company's firebrick, Sackett plaster board, Ricketson (Milwaukee) mortar color, white sand, hair, etc. On the occasion of the completion of their principal warehouse, the company gave, in the new building, a great dinner to which all their numerous customers were invited, and a regular jubilee was held, since all the good things, both wet and dry, were liberally provided, and the new warehouse was christened in the most approved manner.

The Coen Building Material Company, whose office and warehouse are located at Fifteenth and Askew Streets, do a large wholesale and retail business in building materials and specialties and are agents for Western States Portland cement, made at Independence, Kan. In talking with A. S. Coen, I learned they also handled Fort Scott and Louisville common cement, Ironclad cement wall plaster, Youngstown expanded metal, Ransome reinforced rods, Ash Grove hydrated lime, common lime and brick, face and firebrick. They secured the contract for furnishing upward of 16,000 barrels of the Western States Portland Cement Company's cement for the new great Mortgomery-Ward Building, now in process of erection.

The A. M. Fellows Coal and Material Company, whose office is in the Dwight Building, handle about everything in the building material line. In the course of my call, A. M. Fellows, president and treasurer, informed me that in cement they sold the Parthenon brand of Portland; in lime, Glencoe; plaster, Zenith light and Eldora dark; also Elulerite paint and Longmore white lead; fireclay, sewer pipe, Joplin grit, etc. R. E. Withrow is the sales manager of the building material department. The company has a branch office at Oklahoma City, Okla., with H. F. Schiff division sales agent.

While the Deatherage Lumber Company, at their yards, 1065 West Eighth Street and Sixteenth and Indiana Streets, do not handle masons' supplies here, at their branch at Linneus, Mo., they carry a full line of builders' supplies, such as country dealers usually handle. Talking with C. H. Phillips, he pleasantly informed me that he thought Mr. Deatherage, when he came to examine it, would regard ROCK PRODUCTS as so likely to be useful to their manager at Linneus he would order it sent to him.

PLANT NO. 3 OF THE DICKEY CLAY MANUFACTURING COMPANY, KANSAS CITY, MO.

The Halliwell Cement Company, dealers in builders' supplies, have been in business since 1875. During my call at their office, at 312 East Ninth Street, where I met W. S. Halliwell, the president of the company, I learned that they have a cement plant at Fort Scott, Kan., manufacture cement plaster at Dillon, Kan., and have lime kilns at Osceola, Mo. They also manufacture hydrated lime by the Elrod process. The company handle Evens & Howard's and Dickey's sewer pipe. Among the big jobs for which they are furnishing material is molding plaster, cement and lime for the great office building now being erected for the Bank of Commerce. The company have four warehouses in various sections of the city for quick and convenient delivery of building material to the trade.

What is said to be the largest individual clay manufacturing plant in the United States, if not in the world, is the new works of the W. S. Dickey Clay Manufacturing Company, known as Plant No. 3, situated in the "west bottoms" at Kansas City, in order to secure the superior railroad facilities which this location offers various manufacturing establishments. The extensive fireproof buildings of the company, which reflect great credit for the contractors, were erected in 1905 to replace those destroyed in the fire which visited the company in that year, and Mr. Dickey proposed to erect a plant on so large a scale that it would be able to take care of the steadily increasing business which the constant development of the Southwest is bringing, and undoubtedly will continue to bring in years to come. Mr. Dickey founded the great business of which he is the head twenty-seven years ago. This business has grown with the country, and certainly no section of the United States has made greater progress in the past twenty-five years. As is well known, the products of the company are principally vitrified sewer pipe, culvert pipe, conduits, coping, tubing, fireclay flue lining, chimney tops, etc. Considerable development in the demand for fireclay tile is resulting from the steel construction principle in building, and unless concrete work is exceptionally well done, it does not offer equal protection against fire. There is, it is said, no building in the country more nearly absolutely fireproof than the new office building known as the Long Building, from its owner, R. A. Long, one of Kansas City's great lumber merchants, and in this structure the Dickey products were used. Notwithstanding the demands on his time from his extensive business interests, Mr. Dickey is sufficiently public-spirited to devote himself to some extent to politics, and this is seen by his recent acceptance of the chairmanship of the Republican State committee.

Kansas City, Kan.

While bowling along in my electric car, which only cost me five cents per hour to run, I noted a rather dilapidated collection of sheds and wondered if it was worth while to interview the owners, who appeared to be the Wyandotte Coal and Lime Company. I concluded to alight, however, and on going into the office asked a large-sized colored gentleman, who was busily engaged in getting outside of a big watermelon, where the boss was. He replied he was down in the yard, whereupon I proceeded to hunt him up. On my way I peeped into the cement shed and noted that the cement was in cloth sacks, which leads me to remark I have not seen any in paper sacks in the Kansas City market. I also saw a carload of Illinois sewer pipe, which, being shipped so near to Dickey's big plant, seemed like bearding the lion in his den. After wandering around amongst the cars set on the track and dodging numerous teams, I went back to the office, where I found the aforesaid colored man had nothing left of the melon but the rinds. Presently R. H. Grinter, who I found was the manager of this one of the two depots of the company, put in an appearance, and I learned that they handled Iola Portland Cement Company's cement, Ash Grove lime, Acme cement plaster, Dickey's sewer pipe, etc. Hydrated lime (Ash Grove) is also carried in stock and is being introduced. Mr. Grinter said hard plaster was used almost entirely for interior work. In brick work common lime is mixed with sand. The company furnished the material for all the new schools and will supply same for the new Masonic Temple and Elks' Building. When the powerhouse was built they furnished one hundred carloads Chicago AA Portland cement for the foundation. Mr. Grinder said that if ROCK PRODUCTS had any influence with the Louisville Cement Company he wished it would be exerted to induce them to put up their cement three sacks to the barrel instead of two. They had recently prevailed upon the Fort Scott people to make this change. Scarcity of teams is a serious handicap at times, and at present they are hindered in deliveries on this account. Grinter said part of the year one has difficulty in getting material and the balance in putting it to the job. He added that the use of vitrified brick seems to be gaining ground for outside work. Except for the fact that the railroad people are liable any time to serve notice that they intend to carry out their plans for enlarging their yard room, the company would have built new warehouses and sheds to accommodate their rapidly increasing business. The Missouri Pacific and Union Pacific both have switches into this yard. Later in the day I visited the company's other yards and then proceeded to the head office, 910 South Sixth Street, where I found F. S. Merstetter, manager, so busily engaged in checking off bills of lading and examining freight bills to clear up the week's business that I felt loath to trespass on his time.

A. R. James of A. R. James & Son, whose warehouse is at the corner of Fourth and State Streets, knows what builders can do with masons' supplies, since he learned the trade and afterwards was a boss builder himself. He sells principally Western States Portland cement, common lime and Marblehead hydrated lime, American Cement Plaster Company's products, W. S. Dickey's sewer pipe, Clinton (N. Y.) metallic paint, Hematite mortar color, etc. Mr. James has been established twelve years, and lately has been interested in the concrete block business, in which the Milan machine is used. This machine is novel in its features and is practically operated on the plan of concrete building, with or without reinforcement. Mr. James claims cement adds virtually nothing to bulk, and sand very little, both being absorbed, so to speak, in the grain of the concrete and acting as a binder. The Joplin coarse sand is well adapted for concrete block making, since it has something of the character of natural cement.

Sand-Lime Brick

Manufacturing Economic Considered.

Sand-lime brick is steadily gaining a foothold wherever it can be seen in comparison with other brick. It is better in quality and more beautiful in appearance than anything of the kind yet produced. This perfectly non-absorbent light-colored face brick has long been needed. It will sell at good, profitable prices in every market. Dealers tell us that they cannot get them in steady supply and are often forced to sell something else that can be had when wanted. Delay in delivery is the worst possible handicap for any kind of building material, and this feature should have the most careful attention of the manufacturer. If every job that would have used sand-lime brick this year had been supplied, the amount of the bricks now in use would be doubled at least.

The perfect, practical and uniform hydration of lime has long been considered one of the chief difficulties in getting the materials just right for the best results. It has been a kind of stumbling-block all along since the introduction of the industry in this country. Silo methods and steaming under the tracks of the hardening cylinder have been used, and novices have had to experiment until they become experts before passably good hydration could be secured. The study of lime hydration outside of the sand-lime brick industry has proceeded upon a very large scale, and it may be safely said at this time that the highest type of hydration for pure calcium oxide can be produced only when a very large quantity of the material is present, much greater in amount than any brick manufacturer could use. Unquestionably the purchase of perfectly hydrated lime would be a permanent solution of this great obstacle, and possibly help to a great extent in the matter of increasing the output of the plant with a uniform product, which has a direct bearing upon the profits of the business.

It is very hard for the manufacturer of sand-lime brick to estimate the cost of handling, rehandling and hydrating the lime, which is the most delicate part of the operation and perhaps the most essential for complete success. Likely the full cost is never exactly determined and considered. Few manufacturers, for instance, in any line are in a position to compute the absolutely correct expense of a shutdown. All will admit that it costs more than they are able to figure, no matter how carefully they gather up the items. Probably there is not a plant now engaged in the manufacture of sand-lime brick that would not save money and add materially to the profit account by purchasing the lime already perfectly hydrated at a large advance over what they figure the cost at present. It is admitted that the main difference between laboratory-made brick and factory-made brick lies in the more perfect preparation of the materials. The lime hydrated in minute quantities for laboratory use certainly costs very much more than that prepared for a factory proposition. This matter is certainly one that should not be passed over without the careful investigation of those who want to get all the profit that is in their business.

The Columbus Convention.

The fourth annual convention of the National Association of Manufacturers of Sand-Lime Products will be held at the Chittenden Hotel, Columbus, Ohio, on December 4, 5 and 6, 1907. Secretary de Joannes has given a great deal of effort, in conjunction with President Duer and the members of the association generally, to draft the program of topics for discussion along the most practical and useful lines. A partial list of the papers to be read and discussed follows:

"Advantages and Disadvantages of the Tube Mill," Lawrence Comerford, Savannah, Ga.

"The Power Plant," T. M. Jackson, Saginaw, Mich.

"Steam, Gas and Electricity Compared for Power Purposes on Sand-Lime Plants," W. J. Carmichael, Willoughby, O.

"Errors in Manufacturing Operations and Their Remedies," James F. Hobart, M. E., Willoughby, O.

"Mixing vs. Pressure in Securing Density," P. L. Simpson, Chicago, Ill.

"The Essential Conditions of Manufacture for the Production of a Uniform Sand-Lime Product," J. Harry Allan, Winchester, Ky.

"Sand-Lime By-products," Clark Mellen, Colorado Springs, Col.

"Advanced Methods of Cost-Keeping," John L. Jackson, Saginaw, Mich.

"The Manufacturing of Lime and its Preparation for Sand-Lime Brick Manufacture," S. V. Peppel, Columbus, O.

Other topics will naturally arise as the meeting progresses, and indications are that nearly every factory now in operation will be represented. It is an occasion that no member should miss. Ample exhibit space has been provided for the display of sand-lime products.

Sand Lime Brick Production in Germany.

According to the reports of the German Chamber of Commerce (Handelskammer), the demand for sand-lime brick in the spring of 1906 was so great that deliveries could not be made promptly. In the summer the business halted, livening up, however, in the fall, when the output was used up, and then prices increased accordingly.

Interesting Study in Progress.

The useful properties of hydro-calcium silicate (the binding material in sand-lime brick) have been little studied by scientific investigators until recent years. It is the same element that gives the value to all kinds of lime mortars, and as such has been employed by builders everywhere for ages. In fact, lime-mortar bricks have been made and used on a small scale in this country for nearly a century. The application of the results of laboratory developments has given us the sand-lime brick as a commercial commodity, and it represents the highest quality of brick for all purposes that has yet been produced. Brick masons, after a little practice, soon learn to prefer them to any other. Experience is steadily ripening the practical operations of the plants to a basis where more of the bricks can be produced in the regular operations by positive knowledge of the materials and their manipulation. Before long we will have larger plants to supply the demand, which will continue to increase for a long time to come. There is much more yet to be developed out of the study of this same hydro-calcium silicate.

New Concern Well Started.

MINNEAPOLIS, MINN., Oct. 22.—The Belt Line Brick Company has been organized with H. E. Fletcher, president; W. B. Chandler, vice-president and treasurer; and Walter Godart, secretary. The capital stock is $150,000. They have purchased the plant of the American Sandstone Brick Machinery Company, located at New Brighton, a suburb of this city. Among other equipment the plant comprises two Saginaw presses and four hardening cylinders with regular capacity of 40,000 brick per day, and with a possible output, by working a night shift, of 80,000 brick. The company owns a sand bank of forty acres, and took hold of the operations on October 14. Brick made at this plant have been subjected to thorough tests by the city building inspector with brick six days old, and passed all requirements in a satisfactory manner.

The Red Wing Brick Company, Red Wing, Minn., have obtained an enviable reputation for their product in the face of the fiercest sort of competition on the part of clay brick makers, and have recently doubled their capacity so as to increase the annual output to 10,000,000 brick.

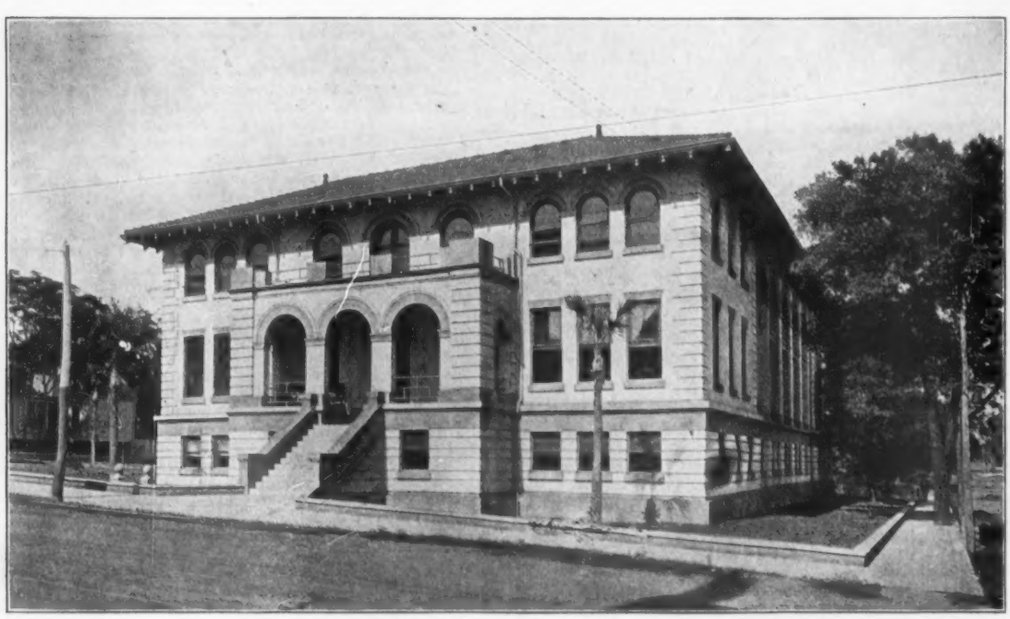
Barron Carter, receiver of the Savannah Sand-Lime Brick Company, Savannah, Ga., says that the plant is now turning out 35,000 brick per day regularly and that orders for more than 1,500,000 are on file. He believes that the concern will be out of its financial difficulties in a short time.

The Illinois Granite Brick Company, Chicago, Ill., has been incorporated with $250,000 capital, by Oscar M. Steffens, Joseph A. Grober and Arnold D. McMahon.

Sand-Lime Brick Industry in 1906.

The total value of the sand-lime brick produced in the United States in 1906 was $1,170,005, an increase of 20 per cent over the value ($972,064) in 1905, according to a recent report of the U. S. Geological Survey. The value of the common brick made by this process in 1906 averaged $6.71 per thousand, as against $6.85 per thousand in 1905, while the front brick averaged $10.42 per thousand in 1906 and $11.02 in 1905. Almost 90 per cent of the product is marketed as common brick, a result that could hardly have been foreseen when the brick was first introduced into this country. The total number of plants has increased from 16 in 1903 to 57 in 1904, to 84 in 1905, and to 87 in 1906, and bricks of this character are now made in nearly every state in the Union. New York is the largest producer, the value of the product in 1906 amounting to $191,000; and Michigan, with a product valued at $174,921, is a close second. California, Florida, Indiana, New Jersey and Pennsylvania each produced in 1906 sand-lime bricks to a total value of more than $50,000.

During the present season Michigan moved up to first place, and complete returns will certainly show that the ratio of increase has been well maintained. The factories have run more regularly this season than ever before.



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It is guaranteed the equal of any American Brand of Portland Cement and will be found to run uniform

in color, strength and fineness. It is suitable for any class of work and is especially recommended where the requirements are exacting.

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BEST FOR STONE SAWING, ROOFING, CEMENT BLOCK FACING, STUCCO, WHITE PLASTER

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CEMENT WATER-PROOFING?

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is made in a dry powdered form.

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From 1% to 4% to each 100 pounds of cement in different classes of work, will insure dry and waterproof results.

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Economical packing and smallest percentage of breakage

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Manufactured

FROM PURE GYPSUM ROCK AND ASBESTOS PREPARED IN BOTH NEAT AND SANDED FORM. ELASTIC—ECONOMICAL—PERFECT WALL PLASTER

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WE GUARANTEE "GYPROCK" ASBESTOS PLASTER TO BE UNSURPASSED FOR STRENGTH, DURABILITY AND EASY SPREADING QUALITIES

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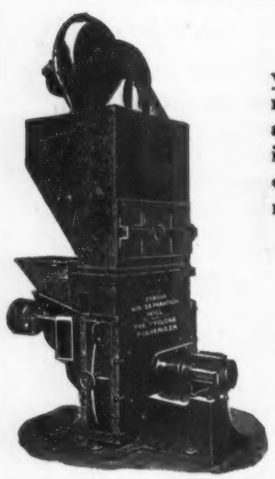
OUTDO ALL OTHERS

In quality of grinding and in output per horse-power per hour on most kinds of work, and they grind for less money per ton.



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We build Screen Separation Mills too.

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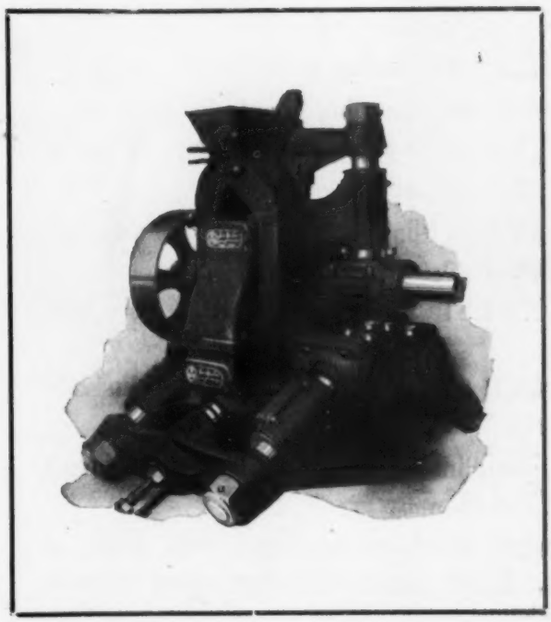

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GRINDS PER HOUR WITH LESS THAN 25 H. P.

CEMENT CLINKER,	40 bbls.	to	98%	20	Mesh.
CEMENT CLINKER,	12 "	"	"	100	"
LIMESTONE,	2½ tons	"	"	200	"
LIME,	4 "	"	"	100	"
ROSENDALE CEMENT,	43 bbls.	"	90%	50	"
QUARTZ TRAP-ROCK,	4 tons	"	"	40	"

You can easily figure from this what a Kent Mill would save for you.

W. J. BELL, Esq. Supt.
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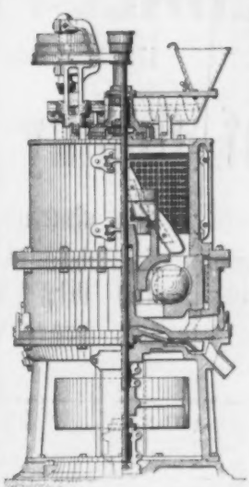
ENGINEERS

41 Cortlandt St., NEW YORK



Fuller - Lehigh Pulverizer Mill

The Best Pulverizing Mill Manufactured

Exhaustive tests in all departments, in competition with the most approved grinding machines in use, have demonstrated the superiority of our machine.

OUR CLAIMS:

Greater Output
Better Fineness
Fewer Repairs
Dustless

Few extracts from letters received from users

"With the four we are now ordering we will have in use 16 Fuller Mills in all, and I think you can hope to get orders from us within the very near future for quite as many more."

"We have to say for your Fuller Mill that it is unqualifiedly the best grinding device we have ever tried on our lime rock and eminently satisfactory to us."

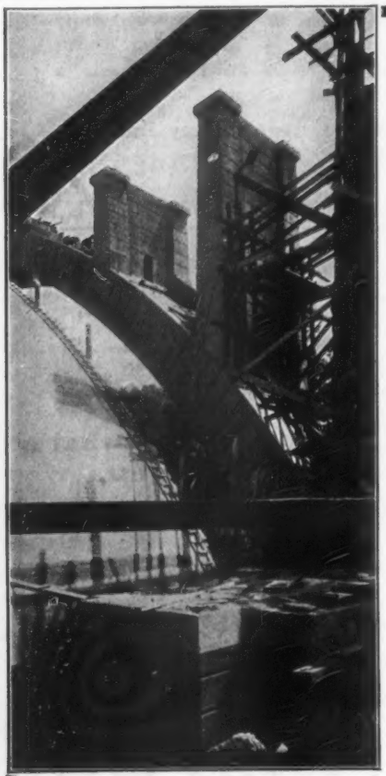
"We are pulverizing with one Ball Mill and four Fuller Mills sufficient raw material to produce nearly 1200 barrels of clinkers per day, which record I believe can not be approached by any other mill on the market."

If interested, write us for further information

Lehigh Car, Wheel & Axle Works

Catasauqua, Pa., U. S. A.

Tell 'em you saw it in ROCK PRODUCTS.



THE LONGEST CONCRETE SPAN

Pyramids have been constructed in the past.

Massive water dams are being built to-day.

Steel is being used for spanning great distances.

Concrete made with WHITEHALL PORTLAND CEMENT IS SPANNING 233 feet.

Walnut Lane Bridge (Philadelphia) stands as an engineering wonder to-day.

IT IS THE LONGEST CONCRETE ARCH IN THE WORLD.

WHITEHALL PORTLAND CEMENT is used exclusively in this work.

This is a great compliment to the quality and uniformity of WHITEHALL.

September number of "Cementology" will treat of this bridge. Extra copies furnished upon request, by the publishers—

THE WHITEHALL PORTLAND CEMENT CO.

BOSTON 1719 Land Title Building, PHILADELPHIA ATLANTA

Uniformity of Quality Is Essential

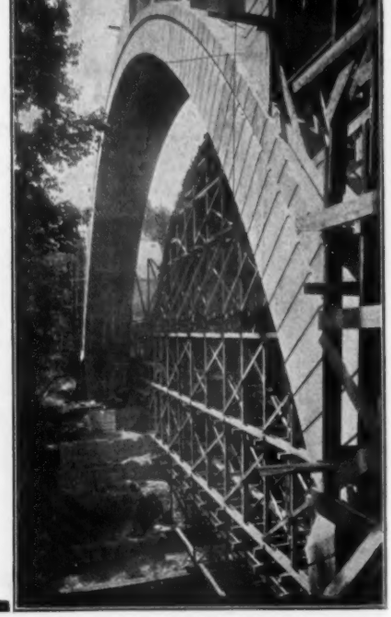
in cement for work of this character.

The Department of Public Works of the City of Philadelphia has tested WHITEHALL PORTLAND CEMENT for the past six years with the following results:

	Specific Gravity	Setting		Ultimate Tensile Strength in Pounds per Square Inch				
		Time in Minutes		Neat			1 to 3 Standard Quartz Sand	
		Initial	Hard	24 Hours	7 Days	28 Days	7 Days	28 Days
Year of 1901 . . .	3.148	82.4	326.5	524	713	765	232	313
Year of 1902 . . .	3.137	66.6	326.0	444	660	731	201	304
Year of 1903 . . .	3.140	64.0	322.0	457	749	797	236	311
Year of 1904 . . .	3.157	64.0	346.0	450	716	759	246	336
Year of 1905 . . .	3.150	56.0	313.0	446	697	744	252	335
Year of 1906 . . .	3.166	55.0	341.0	392	705	759	262	354

G. S. WEBSTER, Chief Engineer

W. PURVES TAYLOR, Engineer in Charge



Whitehall Is the Acme of Perfection

B. F. AFFLECK,
Chairman Executive Committee.

E. M. HAGAR,
President Chicago Cement Exposition Company.

WILLIAM DICKINSON,
Director.

BIG CHICAGO CEMENT EXPOSITION.

Great Interest Manifested Everywhere and Preparations Progressing Rapidly Which Will Make It the Most Valuable Educational Exhibit Ever Held in the West.

What cement means to architecture was well expressed by Irving K. Pond of Chicago when, in his brilliant address before the American Institute of Architects, which is printed in full on another page, he gave the keynote to the deliberations of that learned and distinguished body. "With the science of today to guide us," said Mr. Pond, "and the art experience of the past to illumine, into what logical, noble and beautiful forms should not concrete shape itself to the end of an enduring spiritualized architecture?"

What cement means not only to architecture, but to all the arts and sciences, and to all the world's great industries, will be demonstrated in the Coliseum, Chicago, at the coming Cement Exposition, which will begin on Tuesday, December 17, and continue for five days.

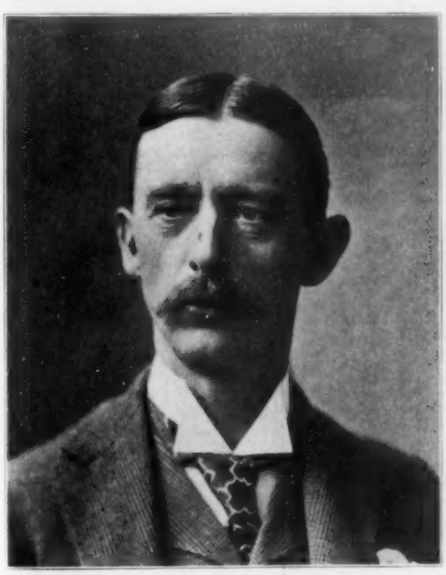
The first stockholders' meeting of the Cement Exposition Company, organized to promote the use of cement through the annual Cement Show, was held at the Grand Pacific Hotel November 17. At this meeting 95 per cent of the stock was represented and the following officers and directors were elected: E. M. Hagar, president of the Universal Portland Cement Company, Chicago, president; N. D. Fraser, vice-president and general manager of the Chicago Portland Cement Company, vice-president; C. H. Wood of the Wolverine Portland Cement Company, Coldwater, Mich., secretary and treasurer. Directors: William Dickinson, secretary Marquette Cement Manufacturing Company, La Salle, Ill.; A. St. J. Newberry, president Sandusky Portland Cement Company, Sandusky, Ohio; E. W. Shirk, president United States Cement Company, Bedford, Ind.; D. McCool, president and treasurer Newaygo Portland Cement Company, Newaygo, Mich.; J. U. C. McDaniel, sales manager Chicago Portland Cement Company, Chicago; B. F. Affleck, general sales agent Universal Portland Cement Company, Chicago.

From these the following executive committee was elected: William Dickinson, B. F. Affleck and J. U. C. McDaniel.

The report of the executive committee, who also acted as the preliminary committee previous to the legal organization of the Cement Exposition Company, and who have been working hard on the general arrangements for over a month, shows excellent progress. The exhibit space already allotted, together with the many applications for space in the exhibit department, encourages the management to believe that this will be one of the best patronized shows, from an exhibit and attendance as well as an artistic standpoint, ever put on in Chicago. Cement will be exhibited in all its forms from the raw material to the manufactured job, as well as the machinery and equipment for constructing same.

The board of directors will meet each Thursday at 3 p. m. at the Grand Pacific Hotel, to discuss the work before the organization and plan for the success of the enterprise. Subcommittees are at work daily, and Manager Fest is keeping a force of workers busy constantly looking after general details.

In the October number of ROCK PRODUCTS a general summary of the aims of the exposition was presented and a detailed outline of special and general attractions. In addition to these courses of short practical lectures, by men eminently qualified to enlighten the trade as well as the general public, are being arranged. It is still too early to give a complete program, but the arrangements already made insure an educational treat such as has seldom been crowded into the limits of a single week. R. L. Humphrey, director of the U. S. Geological Survey cement laboratory at St. Louis and president of the National Cement Users' Association, has been especially invited to participate and has promised his cooperation.



A. ST. J. NEWBERRY,
Director.

J. U. C. McDANIEL,
Director.

C. E. WOOD,
Secretary and Treasurer.

The Fourth Annual at Buffalo.

The fourth annual convention of the National Association of Cement Users, to be held in Buffalo, N. Y., promises to be an interesting affair from every standpoint. President Richard L. Humphrey is preparing the program and says that practically all the space provided has been already taken by exhibitors. There will be an unusually large variety of reinforcing bar systems demonstrated. The old Sixty-fifth Regiment Armory, located at Potter Street and Broadway, will hold the exhibits.

The headquarters of the convention will be at the Iroquois Hotel, where the sessions will be held.

Special inducements in the way of railroad rates will be offered. A fare of one and one-third for the round trip will be in effect.

Every one interested in concrete should make a special effort to attend this meeting, which will last from January 20 to 25, not only for the educational features, but for the practical benefits assured to all visitors.

For the benefit of those who desire to know the qualifications of membership, we quote from the constitution:

"Any company, firm or individual engaged in the construction or the maintenance of work in which cement is used, or qualified by business relations or practical experience to co-operate in the purposes of this association, or engaged in the manufacture or sale of machinery or supplies for cement users, or who has attained eminence in the field of engineering, architecture or applied science, is eligible for membership."

Iowa Association of Cement Users.

The fourth annual convention of the Iowa Association of Cement Users will be held in Des Moines, Iowa, February 19, 20 and 21, 1908. The headquarters for the meeting will be the Savery Hotel, which affords ample and highly suitable accommodations for the sessions of the convention and the exhibits.

Space for exhibition purposes will be allotted by the square foot, and applications should be made to the secretary or to J. R. Hubbart, manager of the Savery Hotel, Des Moines.

Des Moines, aside from being the capital city of the State, is centrally located and easily accessible by steam and electric railway from every section of Iowa and adjoining States. It has ample and unsurpassed hotel accommodations. There are many and varied manufacturing interests which add to the attractiveness of Des Moines as a convention city.

Mr. George H. Carlon of Oskaloosa is president, George R. Ross of Grinnell, treasurer, and Ira A. Williams of Ames, Iowa, secretary of the association, all of whom will gladly answer inquiries and furnish information on request.

Much Wanted Improvement Supplied.

Several months ago ROCK PRODUCTS recorded the invention by A. A. Pauly (of the Concrete, Stone and Sand Company, Youngstown, Ohio) of a concrete structural tile made by pouring a perfectly mixed wet concrete into a mold of any desired shape, and, after it has hardened in the mold, pushing the tile out complete by mechanism provided for that purpose. During the past summer carefully conducted experiments, always accompanied by rigid and comprehensive tests, both as to structure, value and fireproofing requirements, have perfected the machinery necessary for the economical manufacture of the tile. The Pauly poured and pushed concrete structural tile constitutes at once the most radical and important invention of the year. It is undoubtedly destined to become universally popular and useful in the best types of reinforced concrete construction and fireproofing, because from every possible standpoint it is a pronounced success for the purposes for which it has been designed. Tiles have been made measuring 6x12x18 inches, with 1-inch and ½-inch web, at a rate of speed which indicates that tile possessing such high quality can be produced quite as cheaply as the ordinary clay tile, or even cheaper in places where the component materials can be had upon an economical basic scale of prices. In a recent compression test several of these concrete tile showed that they will carry over 400 pounds to the surface foot when seven days old without any sign of cracking. The same tile sixty days old would easily withstand double this load as an average, which is far greater than any practical requirement. The materials used are Portland cement and sand with ground furnace slag or fine crushed rock, prepared so as to form a creamy paste that can be poured readily from a ladle into the molds. A number of these tiles will be on exhibition at the coming Chicago Cement Show in December and at the Buffalo convention of the National Cement Users' Association in January. None of this newest cement product has yet been marketed, but extensive preparations are going forward to equip several large plants in different localities for next season's business, so that something like a supply can be provided to take care of the call which is sure to come promptly for this much-needed innovation.

More of This Kind Needed.

GRAND RAPIDS, MICH., Oct. 29.—Believing that the building ordinance which is now in force on the statute books of the city is working a great injustice and hardship to the residents of Grand Rapids who desire to construct their own homes and manufacturing buildings, President C. H. Leonard of the Grand Rapids Refrigerating Company has sent a communication to the City Council condemning that clause of the measure which prohibits the use of eight-inch concrete blocks. He believes that building operations in this city are being handicapped because of the

M. E. CHURCH, HUNTINGTON, IND.
(Built of hollow concrete blocks.)

restrictions which the ordinance contains and is not at all backward in his prayer for relief. In part his communication states:

"I notice that the ordinance governing the construction of new buildings is so framed as to prohibit the use of concrete blocks eight inches thick. The idea seems to prevail that if block 10 inches thick were used they would be all right. This is a fundamental error because if the block was 24 inches thick and made of sand and water it would be worthless. On the other hand, a block properly made 8x8x16 will stand a pressure of 200,000 pounds before it will crush or crumble; besides, it gets stronger every day.

"We are building just outside the city limits, on Grandville Avenue, a large factory of eight-inch concrete blocks, and would be pleased to have you inspect it at any time. At present we are at work on an office building 40x60 which is made of these blocks and which is strong enough to carry a 10-story building should we desire to carry it up that far."

He cites the elimination of the fire risks where buildings are constructed of cement blocks.

"If you will remove the obstruction which now exists in the building ordinance so as to use eight-inch concrete blocks you will see them rapidly coming into use on all kinds of buildings.

"We hope that this communication will not be referred to the committee on buildings, which framed the present ordinance, as it would be useless to expect any relief in that direction."

Hart & Bradbury have established a cement brick and tile plant at Alexandria, Minn.

J. H. Dills will erect a plant for the manufacture of concrete blocks at Moville, Iowa.

Emil Krenz will erect a plant for the manufacture of concrete blocks at Middletown, Ill.

J. H. Larison has just started to manufacture concrete brick, block and tile at Lanesboro, Iowa.

August Kohncke, of Beardstown, Ill., will erect a plant for the manufacture of cement blocks at Lewistown.

The Waterproof Cement Vault Company has been incorporated at Franklin, Pa., with a capital stock of $6,000.

C. E. Sockler has a large force of men at his cement block plant at Kingfisher, Okla., and reports business booming.

The Wilkes Barre Cement Brick Company has been incorporated at Wilkes Barre, Pa., with a capital stock of $100,000.

J. B. Wilkie and C. E. Williams have formed a partnership for the manufacture of concrete blocks at Marysville, Cal.

The Beaumont Construction Company, Beaumont, Tex., report excellent business in concrete blocks, ornamental work, etc.

Improvements to the extent of $10,000 are being made at the concrete casting plant of the Nevada Engineering Works, East Fourth Street, Reno, Nev.

Howard McComb and Charles Whitmore have just organized the Niagara Concrete Company at Lockport, N. Y., for the manufacture of concrete blocks.

The Superior Hydraulic Stone Company has been incorporated at Superior, Wis., with a capital stock of $40,000, by Henry Huseby, W. R. Fanning and G. E. Rolph.

The Twentieth Century Concrete Block Company, 1044 South Fourth Street, Camden, N. J., report an increase in the demand for their concrete blocks for building purposes.

Architect F. A. Swingle, Kennewick, Wash., who is at present erecting five concrete block buildings, is also interested in the manufacture of concrete blocks at that point.

Theodore Dangerfield will establish a cement tile plant on Main Street, Manson, Iowa, and will employ a force of men during the entire winter. He has contracts for some 20,000 tile.

The B. & W. Concrete Stone Company has been incorporated at New Richmond, Wis., with a capital stock of $3,000, by Ira A. Bell, Ernest J. Bell, J. M. Webster and Ernest C. Webster.

The Diamond Concrete Stone and Construction Company has been incorporated at Waukesha, Wis., with a capital stock of $15,000, by Carl H. Sawyer, W. P. Sawyer and Percy Sawyer.

One of the latest jobs finished by Ferson & Marble, concrete block manufacturers of Sunnyside, Wash., is the Hitchcock Block, 50 by 100 feet.

The Marysville Sand, Cement Block and Brick Company has been incorporated at Marysville, Cal., with a capital stock of $50,000, by C. H. Gunn, F. Tahista, J. P. Lydon, J. C. Baldwin, M. Reissinger and F. B. Kupser.

Concrete is the material of the new feeding floor of a pig pen, 20x40, recently put in place by Henry Reighel, on his farm at Gilman, Ill. The floor is composed of four inches of concrete on a four-inch bed of cinders.

The South Shore Concrete Company has been incorporated at Freeport, L. I., with a capital stock of $10,000, by Thomas H. Carroll, 571 Sterling Avenue, Brooklyn, and Edward P. Thayer and Cadman H. Frederick, of Freeport, L. I.

Topeka, Kan., will have a new cement block manufacturing plant at 507 East Fourth Street in the early spring. Bowersfield & Spohn is the name of the firm, and both members are thoroughly familiar with this form of building block.

The Northeastern Concrete Paving and Construction Company has been incorporated at Portland, Me., with a capital stock of $50,000. The officers are: L. A. Gondy, president; Carrol Brown, treasurer; W. S. M. Kelly, clerk, all of Portland.

W. H. Wilson has formed a company for the manufacture of concrete blocks and monolithic work at South Pittsburg, Tenn. The site of the new plant will be just east of the N., C. & St. L. Railway, between Faris' planing-mill and the Central Foundry.

The Wright Brothers Company, Huntingdon, Pa., has been incorporated with a capital stock of $50,000 for the operation of a stone quarry and the manufacture of concrete blocks. The incorporators are S. D. Longnecker, of Petersburg; D. B. Wright, Mapleton; J. Murray Africa, C. C. Wright, W. R. Wilson and Thomas W. Pyles, of Huntingdon.

Buffalo Breakwater.

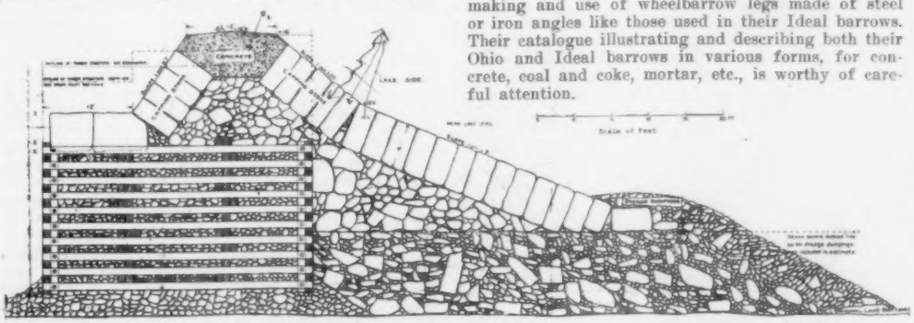
BUFFALO, Nov. 17.—Much stone is being used by the Great Lakes Construction Company in repairing the Government breakwater in Buffalo. Part of the wall was swept away during a fierce windstorm. The portion of the structure wrecked was of wooden cribbing filled with heavy stone. It is being replaced with enormous rocks. Some concrete is also being used. A stretch of 1,910 feet is being repaired. The scene of the improvements is marked by activity. On large scows anchored along the wall are piled tons of mighty rock. On one scow there is a derrick that is capable of swinging the ten-ton rocks into place. The stone used in this work is flint limestone from the Yammerthal quarry, located just outside of Buffalo. Along the line of the old breakwater the cribbing has been torn from its place and the rocks of the superstructure have been scattered. There are many tons of rubble below the waterline, however, and a score of men clad in rubber suits are groping for these, stone by stone. The old cribbing is to be emptied to a depth of four feet below normal lake level. The stones taken out will be used on the outside of the new wall, from which a slope will be run 52 feet into the lake. On top of this bed of rubble a tier of massive rocks will be laid. The average weight of each rock is nine tons, and many of them

CEMENT PRODUCTS DISPLAY OF A. M. COLWICK, DALLAS, TEXAS.

run as high as ten tons. This structure will be built three feet above the water line and will be capped with another sloping structure twelve feet higher, of the same big rocks and solid concrete. It is estimated that 6,120 tons of the big capstones and 23,000 tons of rubblestone will be used. The concrete will be molded into place at the top of the structure. It is sometimes customary, according to Charles Pryne, chief clerk of the United States Engineer's office at Buffalo, to have angle stone at the top in place of the concrete, but in this case, at least, it was believed that the angle stone would be too expensive.

They All Look Like Winners.

Theodore Collins of Hillsboro, Wis., sends ROCK PRODUCTS the photograph from which the accompanying cut was made. He writes: "I enclose a postcard which shows an exhibit I had of my products at the Hillsboro Fair. It also shows another winner, the old running horse 'Assessor,' who cleaned them all up for several seasons at the Minnesota State Fair. The people on the card are firm believers in cement products. I am still with my father in the monument business, and aside from attending to my factory have closed 120 contracts for monuments this season. Have worked many hours overtime to accomplish all this, but it seems all



HARBOR IMPROVEMENTS AT BUFFALO, N. Y.

CONCRETE DWELLING AT KENMORE, N. Y. (Built by J. B. Rickert.)

O. K., for the results reward the efforts. And then again, the lady sitting in the camp chair—Mrs. Collins—has helped me keep the details under observation, and, as you know, too much attention cannot be paid to the little things that go toward bringing a comparatively new industry to the front."

Combining Economy and Beauty.

BUFFALO, Nov. 15.—Concrete is growing in popularity as a material for use in the construction of the walls of houses in Kenmore, a suburb of Buffalo. The accompanying picture shows a concrete building built for R. M. Cramer in West Sanborn Avenue, Kenmore, by J. B. Rickert. Mr. Rickert, who is a successful contractor of that place, is doing a rushing business in the concrete line. Mr. Cramer is pleased with his new home, which is 41 feet by 32 feet. The house has eight rooms, including a bath, and cost about $3,500. J. C. Lillibridge is also having a house built of concrete blocks in West Sanborn Avenue. The structure, which is being built by Mr. Rickert, will be ready for occupancy by January 1. The house is to have nine rooms, and will cost about $3,500. Mr. Rickert recently finished a concrete home for Burt Hitchcock in East Sanborn Avenue, Kenmore. The building has seven rooms and cost $2,500.

The distinguishing feature of the Ideal line of wheelbarrows made by the Ohio Steel Wheelbarrow Company (Toledo, O.) is the patented steel angle leg and cross brace construction. It puts them in a class by themselves. The company are the sole owners of

CONCRETE DISPLAY OF THEO. COLLINS, HILLSBORO, WIS.

patent No. 758,824, issued May 3, 1904, covering the making and use of wheelbarrow legs made of steel or iron angles like those used in their Ideal barrows. Their catalogue illustrating and describing both their Ohio and Ideal barrows in various forms, for concrete, coal and coke, mortar, etc., is worthy of careful attention.

The J. R. Alsing Company, engineers, manufacturers and patentees of crushing, grinding, drying and pulverizing machinery (136 Liberty Street, New York), announce that owing to enormous increase in their business they have increased their capital stock from $20,000 to $100,000. They have also changed their name to The J. R. Alsing Engineering Company. The officers will remain the same as in the old company, Mr. R. F. Abbé being the president. The company was founded in 1869 and organized under the laws of the State of New York in 1885.

Manufactures Artificial Stone.

LOS ANGELES, CAL., Nov. 17.—A staff representative of ROCK PRODUCTS called on H. S. Russill, 811 South Spring Street, where he is engaged in the retail manufacture of artificial stone.

Mr. Russill stated that he had several block-making machines, and also a number of mixers that he was using in his operations. At present he is devoting his attention toward molded stone and broken ashlar work. Among the machines used are the Kimberley (Los Angeles), Wingate and U. S. Standard, Ashland Steel Range and Manufacturing Company (Ashland, O.), United Cement Machine Company (Columbus, O.). A Helm brick press, with 8,000 pounds pressure, is also used. U. S. Standard and Positive mixers handle the mixtures. The cement used

RESIDENCE AT AURORA, ILL. (Concrete work by Brown & Thayer.)

throughout his work is the Utah Portland Cement Company's "Red Devil," and the Western States Portland Cement Company's brand. Some work calls for crushed granite facing.

First Concrete Building in Town.

GREEN BAY, WIS., Oct. 23.—The Northwestern Tile Company of Milwaukee are erecting a six-story and basement reinforced concrete structure, 159x44, at the corner of Walnut and South Main streets, for J. R. Monahan.

The building is modern throughout. The upper floors will be occupied as offices and main floor as store-rooms. Whitehall Portland cement is used exclusively.

The National Hydraulic Stone Company of Baltimore, Md., had some interesting tests made on blocks taken from their stock. The tests were made by Allen S. Crocker, M. E., Rochester, N. Y., and showed the high crushing strength of blocks manufactured on Fisher hydraulic machines. The tests proved also the uniform strength of this manufactured stone, and were very gratifying to those interested.

OBITUARY.

Charles A. Brockett, president of the C. A. Brockett Cement Company, Kansas City, Mo., died at his home on November 1, of heart disease. Mr. Brockett was a man of sterling qualities, one of the makers of Kansas City, where he has resided and conducted his extensive business for more than thirty-five years. He was 63 years old, born at New Haven, Conn., served during the Civil War in a Connecticut regiment with honor, and after the war for a number of years was engaged in the sewer pipe business at Pittsburg. He came to Kansas City in 1873, and organized the Kansas City Frearstone and Pipe Company, which was later succeeded by the Charles A. Brockett Cement Company, of which he was president at the time of his death. Twice married, he is survived by a step-son, Howard McCutcheon; two sons, Robert M. and Donald B. Brockett, and a widow. Mr. Brockett enjoyed a very wide business and personal acquaintance and was universally loved. He was a Mason of high degree, a Knight Templar and a Shriner. The world will never have enough men of his high character.

Concrete Engineering

Concrete Footings in New Orleans.

Concrete construction is rapidly gaining popularity in New Orleans. One of the greatest difficulties in connection with the construction of heavy buildings heretofore has been the impossibility of securing solid and permanent footings—this on account of the peculiar conformation of the ground upon which the great Southern city is built. It would be a marsh, or indeed entirely submerged, were it not for the levee system which was constructed long ago to keep the Mississippi from overflowing the whole region. A few years ago wooden piling was resorted to in the hope that a solution had been found to do away with the eternal sinking away of foundations which actually threatened the progress of the city's building prospects. It was soon found that wooden piling is only reliable deep under the surface beyond the zone of attacks of subterranean insects and perpetual moisture. A combination of wooden piles and concrete has been developed which is practically perfect from a structural point of view and can be well illustrated by the footings and foundation now being constructed for the new Courthouse, which a staff representative of ROCK PRODUCTS at the big job describes as follows:

The work on the new Courthouse is progressing as rapidly as it is possible for a structure that covers an entire square. The excavation for the basement has all been completed and long pine piling driven down fifty or sixty feet. The general contractor is A. B. Stannard, St. James Building, New York City. The architects are Brown, Brown & Marye of Atlanta, Ga. Fred W. Brown, the senior member of the firm, has taken up his residence here that he may work in conjunction with the local architect in supervising the work.

The general superintendent is W. J. Dalzell of New York. On him devolves the heavy work of the building. He has to understand every part of the construction and keep track of everything. Some of the laborers are Southern negroes, and Mr. Dalzell is not used to their happy-go-lucky ways. While he does not say anything, one can readily imagine the vexations of his innermost soul.

In addition to the general superintendent, there is a superintendent in charge of the several branches of the work, such as the fireproofing, the waterproofing, and the marble work. The frame of the entire building is to be of reinforced concrete.

Groups of twenty-five to thirty piles were driven down, as shown in the illustration, by powerful hammers. These piles are yellow pine trees, larger than telegraph poles and sixty feet long. The piles are then capped with concrete reinforced with cold twisted lug bars. On each of the caps indicated rests one of the reinforced concrete columns.

The space between the footings is leveled to make the basement floor and then overlaid with four inches of dry cinders, then two inches of cinder concrete, then three-ply waterproofing composition, then three inches of crushed-stone concrete, which is overlaid with one inch of cement finish. This brings the floor level with the top of the capping.

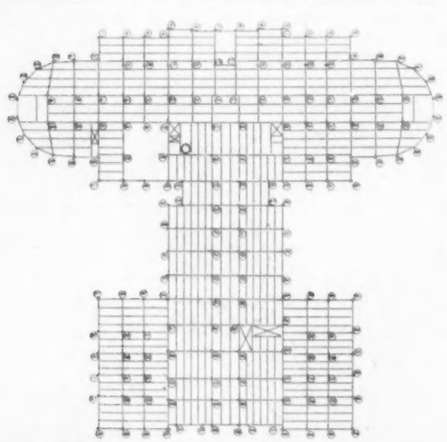
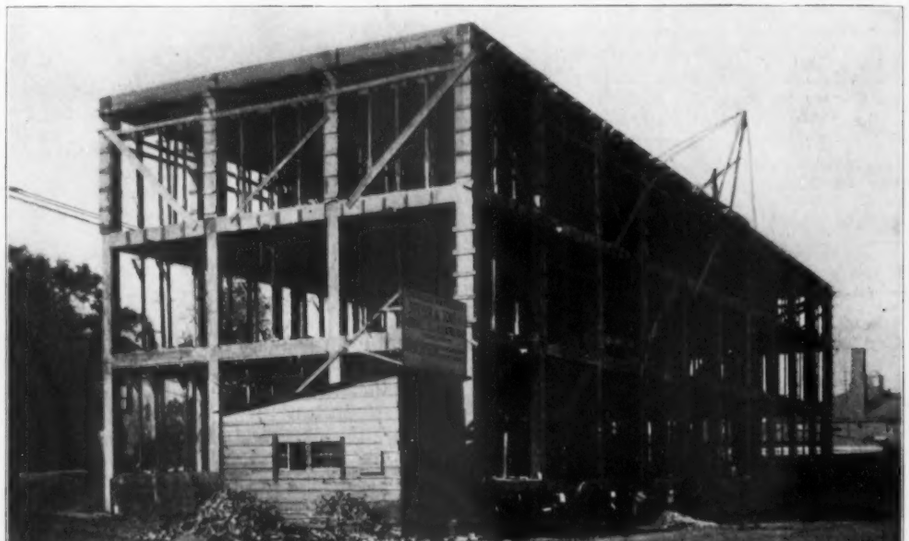


DIAGRAM OF CELLAR FLOOR, SHOWING CAPPING OVER THE GROUPS OF PILING.



THE SPEYER WAREHOUSE, LEXINGTON, KY.

The waterproofing here mentioned is done by the T. New Construction Company of New York and is something new in this part of the country. It is termed three-ply felt and tar. There is first a layer of tar, which is covered with felt, then another layer of tar and another of felt, then tar, until there are three layers of each, and on top of this is a final layer of tar upon which the crushed-stone concrete is placed.

This waterproofing covers the cellar floor and walls. In short, it underlies all the work that touches the ground.

The fireproofing and structural concrete work are being done by the General Fireproofing Company of Youngstown, Ohio, and superintended by Engineer R. L. Libby of that concern. The system consists of the use of pin-connected steel girder frames in beams and girders and cold twisted steel lug bars in slab and column work, as reinforcement for concrete. This is the first example of concrete work by this system in New Orleans.

The concrete work is being started on the ground floor. The proportions of the concrete are one of cement, two of sand and four of crushed stone. Two Smith mixers are kept busy, and numberless Ransome carts are hauling the mixed concrete to where it is being placed. The reinforcement of this system is always connected from end to end of the building, similar to structural steel. It is linked and pinned together over the columns and thoroughly tied together throughout the building. The columns are reinforced with straight upright steel lug bars and hooped with twisted bars.

The stone used comes from the Alabama quarries. No trouble is experienced in getting sand and cement, but the car-shortage gives trouble in getting the stone.

Warehouse at Lexington, Ky.

LEXINGTON, KY., Nov. 1.—The largest reinforced concrete building in this city is now in course of construction on Spruce Street. It is being built by the Concrete Steel and Tile Construction Company of Detroit, for Speyer & Co. of this city. It is a warehouse and will be used for storage purposes principally. The architect of the building is H. L. Rowe. It is 44 feet wide by 150 feet deep, and has four stories, including the basement. Being on the L. & N. road, it has a sidetrack along the side of the building for shipping purposes. The superintendent in charge of the building is H. E. Curtis, B. White is the engineer, and they are assisted by W. R. Hyman.

The greatest difficulty was encountered while excavating for the building, and the plans of the basement were changed to a considerable extent after the excavation had been made. A double brick tunnel carrying the city sewage runs direct through this property. At first they thought they would abandon the project and secure some other site, but after considerable difficulty they overcame the obstacle and now have the building well under way, although much time has been lost, and the completion is overdue. While they were excavating, water from the sewer would pour in, and each morning would find a depth of several inches. The health of several of the workmen was seriously affected, especially those who were not used to this kind of work. To overcome this obstacle the course of the sewer had to be changed. A concrete retaining-wall was built extending far out into the street, and 40 feet to the rear of the building. A 450-foot drain was constructed to carry off the water. This was through a bed of solid rock, and every inch of it had to be blasted, and under most unfavorable circumstances.

The Kahn system of reinforcing was employed throughout the entire building. Giant cement has been used principally in the construction, concrete being made of cement, gravel and sand. The materials were all furnished by Louis des Cognets of Lexington.

The materials, that is, the cement, sand and gravel, are conveyed by barrows to a platform raised about three feet above the ground on the south side of the building, and dumped into the car, which is pulled up to the platform. After being thoroughly mixed the concrete is dumped into barrows and conveyed by an elevator to the floors, where it is distributed.

Columns sixteen inches square and fifteen feet apart support the building. There are three across and ten in the length. These columns rest on piers with a 4-foot foundation in solid rock. In order to lay this foundation the rock had to be drilled, and a coupling bar put in, half of which was sunk in a hole, which was filled with concrete. The beams which support the floors are sixteen inches in diameter, reinforced by the Kahn bars, and rest on the columns. The floor of each story is laid with hollow tile covered with a thickness of concrete in 8-inch slabs, the roof being a 6-inch concrete slab. The whole structure is to be inclosed with curtain walls of brick. Reinforced bars in the columns and beams are all wired together so that the strain of the load does not fall on any one bar or particular part of the column or beam, but is evenly distributed through the whole span. A large freight elevator will be installed.

Overprecaution is taken rather than the slighting of the reinforcing, this company believing in taking care to have the concrete carry a maximum load rather than a minimum load. In this case the heavy materials will all be in the basement, while the lighter materials stored by this company will come on the upper floors. Consequently the strain will be on the solid rock rather than on the concrete—a decided advantage over most warehouse buildings. It was expected that the building would be completed in six weeks, but it has taken more than that already.

Constructing a Large Concrete Sewer.

At a total outlay exceeding $100,000 an immense sewer is now being constructed through the center of Oakland, Cal. The work is being done by the Atlantic, Gulf and Pacific Company of San Francisco, and is not yet half completed. The sewer conduit begins near Lake Merritt and extends down to the bay, and out beyond the United States bulkhead line. Its total length is 5,093 feet—nearly one mile.

It is being built entirely of concrete and reinforced with No. 4 expanded metal. Its construction is known as the "horseshoe section" style—that is, a sectional view, as shown in the illustration, presents the outlines of a horseshoe. The interior dimensions are: 6 feet wide at the bottom and 6.2 feet high at the crown. Across the bottom on the outside the foundation-flooring, or wall, is 9 feet wide. It is estimated that not less than 4,200 cubic yards of concrete will be required in building this huge sewage conduit.

All the foundation consists of pine piling. Thousands of piles are driven many feet and sawed off below the water level, and on these the sewer will rest. For more than 1,800 feet the sewer will pass through tide lands, and the building will practically be under-water work for that length. For the rest of the distance the sewer will be constructed across wide stretches of salt marsh, and there much excavation will be necessary.

Wooden forms are used in building the walls, and as rapidly as the concrete is set the molds are shifted forward. Caissons are used in working through and under water. This will be the largest and most expensive sewer ever constructed in Oakland. The walls have an average thickness of about 17 inches.

BIG MIXER AT WORK ON OAKLAND SEWER.

Work was commenced some months ago, but will not be completed before next summer. By means of a connection with Lake Merritt, at the upper end, the sewer can be flooded and flushed out for its entire course at any and all times.

The illustrations herewith show, respectively, a stretch of ditch through the salt marsh, a finished section of the big sewer, and also the actual work of construction, with a big Smith mixer preparing the concrete material.

Reinforced Concrete Business Structure.

A notable example of modern reinforced concrete construction as applied to high buildings in Philadelphia is the new building at 1211-17 Arch Street of the Boyerstown Burial Casket Company. The building has a frontage of 79 feet 6 inches on Arch Street, and extends in depth 117 feet 6 inches on Appletree Street. It has ten stories and basement, also mezzanine floor in the first story. It is of skeleton construction, reinforced concrete having been used for columns, floor and roof construction, with spandrel walls of brick. The front is in the modern Renaissance style of architecture, the first story being of granite, and the stories above of brick, with terra-cotta trimmings. There are three brick-enclosed stairways, two of which will be for towers. There will also be one passenger and two freight elevators. A boiler plant will be located in the basement with a 4-foot diameter steel stack in a brick shaft extending above the roof. The first floor will be occupied by the private and general offices, with store, showroom and shipping department in the rear. The wagon area in connection with the shipping department is extended to the first row of interior columns, permitting the wagons to be loaded under cover. The upper floors will be used for storage and manufacturing purposes. Ballinger & Perrot, concrete specialists, were the architects and engineers for the building, and Cramp & Co. were the contractors.

DITCH AT OAKLAND THROUGH SALT MARSH.

Pittsburg Gage and Supply Company.

The immense building now being erected by the Pittsburg Gage and Supply Company at Thirtieth Street and Liberty Avenue, Pittsburg, Pa., is constructed of steel, brick and concrete fireproofing, equipped with automatic sprinklers throughout, and when completed will be the largest, most modern and thoroughly equipped supply house in the world.

For the concrete work Lehigh Portland cement was used throughout. The W. G. Wilkins Company, Westinghouse Building, were the architects, and the George Hogg Company the contractors.

The first floor will be used as a general salesroom; the second floor will be taken up by the offices and shipping departments of the company. All the other floors and the basement will be used as storage space for their mammoth stock. A notable feature of the main building is the central tower rising more than forty feet above the roof. In this tower will be located water tanks holding 65,000 gallons, which will be used for the house supply and the automatic sprinkler system.

In connection with the building there is being erected a six-story fireproof building, in which will be manufactured the Pittsburg steam specialties. It will also contain a thoroughly modern brass foundry and pipe shop. Electric cranes are to be used throughout, and all machinery, elevators, etc., will be electric-motor-driven.

A joint siding of the Pennsylvania, Baltimore and Ohio and Pittsburg Junction railroads will afford excellent shipping facilities. Adjoining this siding they are constructing a large iron, steel and pipe warehouse, in which will be carried the largest stock in Pittsburg, if not in the Central States. Adjoining this building there is a vacant frontage of almost 100 feet, which will be used for storage and switching purposes.

The present stores and warehouses of the Pittsburg Gage and Supply Company are located at 309-321 Water Street, and its manufacturing plant at Thirty-first Street. The officers are: W. L. Rodgers, president; J. Lee Rodgers, secretary; R. F. Ramsey, treasurer; A. F. Maxwell, assistant treasurer; M. R. Porter, sales manager, and H. E. Haller, superintendent.

New Cement Floor.

KANSAS CITY, MO., Sept. 22.—Permanite Seamless Floor and Stone Company is the name of a new concern of which J. W. French is secretary and treasurer. When I called at their plant at Nineteenth and Tracy Streets I found Mr. French busily engaged in making some experiments or tests, of the nature of which he did not fully advise me. He said that chemicals were used in preparing their flooring, which they aim to manufacture in such a way that there is no plastic, no pressure and no heat employed, but at the same time complete crystallization of material is secured and the wet product is no heavier than the dry, thus showing there is no loss from evaporation. Mr. French was formerly superintendent of construction in the building of the Iola Portland Cement Company's plant, which was the first Portland cement plant established in the Southwest.

END VIEW OF THE OAKLAND SEWER.

The fifty-fourth annual meeting of the American Society of Mechanical Engineers will be held in the Engineering Societies Building at 29 West Thirty-ninth Street, New York, December 3-6.

NEW FACTORY OF THE PITTSBURG GAGE & SUPPLY COMPANY.

SWIFT & CO.'S BURNER-HOUSE, ATLANTA.

CONCRETE FERTILIZER PLANT.

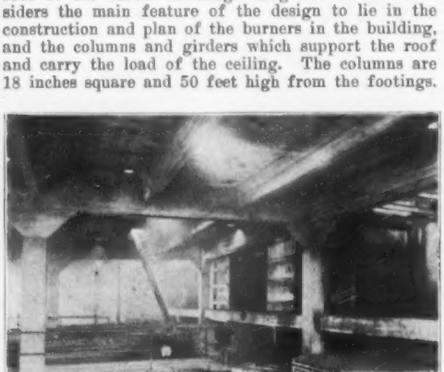
Introduction of the New Method of Construction in One of the South's Most Important Industries.

ATLANTA, GA., Oct. 22.—The latest and largest reinforced concrete building recently completed by the Southern States Reinforced Concrete Company, whose offices are in the Austell Building, was constructed for Swift & Co. and is used as a fertilizer manufacturing works. The engineer for the building was A. F. Walker, who designed and personally supervised the construction.

It has been found by the manufacturers of fertilizer that the acids and fumes arising from the burning processes deteriorate the timber in such buildings, necessitating reconstruction at frequent periods. All the manufacturers of fertilizer in this section, of which there are a great many, have found this same trouble, and Swift & Co. is the first concern to part from the usual means of construction.

Concrete was selected as a material which would be both fireproof and less affected by the acids and fumes, and the Southern States Reinforced Concrete Company was given the contract for the erection of

The structure is on the line of the L., N. & St. L. Railway to the north of the city. It cost when complete $25,000. The Ransome system of reinforcing with twisted bars was used in the construction, and the materials consisted of Atlas, Kosmos and Old Dominion Portland cements, together with crushed stone and sand, the aggregate for concrete mixture being in proportions of 1:3:5. The shed of the building, which covers the platforms from which the cars are loaded, consists of a concrete roof supported by columns. This is 67 feet long and 22 feet wide. The main building is 150 by 67 feet. The curtain-walls between the columns of concrete are of brick. The center tower is 129 feet long by 18 feet wide. On account of the peculiar construction of a burner-house the floors from which the operations are conducted consist of gangways. The columns supporting the roof are 32 feet apart, this great span distance being necessary on account of the width of the burner-flues. The beams running from the columns on one side of the building carry the front wall of the tower, which is 25 feet above the roof of the burner building. Engineer Walker considers the main feature of the design to lie in the construction and plan of the burners in the building, and the columns and girders which support the roof and carry the load of the ceiling. The columns are 18 inches square and 50 feet high from the footings.



INTERIOR OF SWIFT & CO.'S BURNER-HOUSE.

The front wall is 8 inches thick between the pilasters, which are 4 by 16 inches. A concrete roof covers each part of the building. This construction has proved entirely satisfactory, and no doubt other fertilizer companies will adopt this form of construction.

Big Concrete Structure for San Francisco.

With the exception of the huge Pacific Building, the largest concrete building in San Francisco is the new factory structure that has been erected by the American Biscuit Company, at the corner of Broadway and Battery Street. This building will cost $500,000 when fully completed. It occupies a site 275x137 feet and, besides the immense basement, has five stories. The structure is Class A, and absolutely fireproof. No skeleton of steel is used, but the building is composed of concrete reinforced according to the Kahn method. The walls of the basement are very massive, and all of the superstructural work very heavy and strong. Engineers pronounce it one of the very strongest in San Francisco. The entire building will be occupied by the American Biscuit Company with its immense factory. It will be completed within less than two months.

This building was erected by the company under the general and personal supervision of Mr. R. W. Hart, who was architect, contractor and consulting engineer all combined.

A Credit to Its Builders.

MINNEAPOLIS, MINN., Oct. 26.—The Brayton Engineering Company of St. Paul are erecting a four-story and basement reinforced concrete building at the corner of Lake and Colfax Streets for the Self-Threading Needle Company. The structure is 122'x 58' 8", modern in every way, and will be used as a

THE AMERICAN BISCUIT COMPANY'S BUILDING AT SAN FRANCISCO.

factory and general offices. The Brayton system of reinforcing is used.

A test of the longest beam, which, by the way, is the longest in the Twin Cities, of 200 pounds per square foot, showed a deflection of 1-16 inch. The Building Inspector calls for a test of 100 pounds per square foot.

Owl Portland cement was used, furnished by the D. L. Bell Company, St. Paul.

The architecture of the building is along straight lines, which indicate mammoth strength. The main entrance door is of fancy design. A heavy cornice of the same pattern gives the finishing touch of beauty. It is a beautiful structure and a credit to the builders. It will be ready for occupancy January 1.

New Steel Centering Company.

A company has been formed in Fond du Lac, Wis., of which Architect J. E. Hennen of that city has been elected president, to manufacture steel centers for use in building sewers, culverts, cisterns, etc., out of concrete and other materials. Its title is the Adjustable Steel Centering Company. Other officers are: Vice-president, H. T. Sackett; secretary and treasurer, J. E. Dooley; directors, Henry Loehr, Herman Rosenkrantz, Herman Michler, John P. Kalt and J. E. Hennen.

Hydraulic Stone Plant Operating.

BANGOR, ME., Sept. 29.—The plant of the Caribou Hydraulic Stone Company, in Caribou, has been completed and is now working on special orders. Hon. George W. Irving is president of the company and Hon. Willis B. Hall secretary and treasurer.

MODERN FACTORY CONSTRUCTION.

Continued from page 3.

on centers, longitudinally. The clear span of the two outside bays is 22 feet, and the inside bay 16 feet. Each bay has an unbroken ceiling, the beams spanning from column to column lengthwise of the building. These beams are 16 by 26 inches total height to top of the concrete floor and are reinforced with two trussed bars, 1¼ by 3¾ inches, reaching from center to center of column, and two 1x3-inch bars the same length, but bent up slightly at the ends to take additional shear. Two 1x2-inch bars, one-third of the span in length, inverted over the columns, insure continuous action.

As the building houses skilled mechanics doing high-class and delicate work, it is necessary to have all the light possible. To accomplish this, the windows extend clear from column to column, only 24 inches of possible light space being lost in each panel of 16 feet 1⅛ inches. The windows extend upward to the bottom of the wall beams, which drop 4 inches below the ceiling.

Boxes and molds were made in the usual way, on the ground, and hoisted to the floor where they were required. All beams and columns were chamfered 1½ inches. The centering was erected in such a way that the columns could be stripped first (in ten days); then the side of the beams and the floor were stripped (two weeks), leaving the bottom of the beams on, shored, together with the shoring under the center of the floor-slab span. This shoring was left in as long as convenient, at least three weeks. Thus some of the first-floor forms were used again on the third floor, and all the rest of the first-floor material used for the fourth floor. All column boxes were placed exact and braced plumb before being notched to receive the beam boxes. After proper openings had been sawed in the column boxes, the beam boxes, cut out to exact length, were lifted to place and fastened. This reduced working on an elevated scaffold to a minimum.

The mechanical plant consisted of a Smith mixer and engine, a hoisting engine, a Ransome hoist, a single-platform hoist, and a gin pole with block and tackle. The one engine operated all the hoists. The mixer was elevated about 5 feet above the street, and a runway made on each side, one for sand and one for stone. The hoisting engine was beside one of these runways, and directly beyond it, about 25 feet from the mixer, was the cement storage-shed. For all except the basement, the concrete was dumped from the mixer into the Ransome hoist, which, when hoisted, dumped automatically into a wooden shoot with an iron end. The wheelbarrows were loaded from the chute through a door in the end. All this plant was located in the middle of the long side of the building, and this location was found convenient both for receiving material and distributing the concrete. The platform hoist was at the corner of the building, and was used for hoisting tile, brick, short lumber, steel, etc.

All tile was loaded onto the hoist and unloaded by hand. On account of the short haul, this was found more expedient than loading into the wheelbarrows. The gin pole was rigged on the floor being worked on, and on it were hoisted all boxes, lumber, steel, and all other large and heavy material.

Atlas Portland cement was used throughout, with ½-inch broken stone, the mixture varying from 1:2:5 (3-inch stone) in the footings to 1:2:4 in the beams and floor, and 1:1½:2 in the columns.

All the exposed concrete work up to and including the belt course above the second floor wall beams was finished with a rough chiseled face. This proved a very effective finish, especially at the front entrance, where considerable decorative work had been done in concrete.

For the five reinforced floors and roof, a speed of a little less than ten days to the floor was maintained. The reinforced concrete work was designed by the Trussed Concrete Steel Company of Detroit. Albert Kahn of Detroit was the architect, and the concrete work was done by the Concrete Steel and Tile Construction Company of Detroit. The W. J. Burns Company of Syracuse were the general contractors.

Concrete Coffin Boxes.

John T. Blake of Madison, Wis., has worked up quite a business in manufacturing rough coffin boxes out of concrete. The boxes are sold to take the place of the rough wooden boxes in which the casket is usually placed in the grave. It is provided with a concrete lid, screwed down with a set screw, which insures permanent inclosure for the casket, in place of one subject to the mouldering action of time.

From Our Own Correspondents

PITTSBURG AND VICINITY.

PITTSBURG, PA., Nov. 18.—The cement and concrete business throughout the Pittsburg District during the latter part of October and the first half of November has kept up remarkably well for this time of year, and a number of the large dealers in cement and supplies report that they have almost as much business on hand and as many future orders to fill as they had two months ago. This is, in all probability, due to the pleasant weather of the past month or so, which has permitted outside work to go ahead with as much speed and safety as in the summer months.

The cement business has not been affected by the stringency of money, so much talked about, but has fallen off even less than has usually been the case in the early winter months. Prices have receded slightly and the general tone of the market is good.

The contract for a large amount of concrete curbing and paving that will be laid this fall and winter at West Waynesburg, Pa., has been awarded to Thompson & Stillwell of Waynesburg, and work will be started at once in order that the brick-paving may be completed this fall.

The announcement has been made public by the officials of the United States Steel Corporation that the Edgar Thomson Steel Works will be entirely rebuilt during the coming winter almost entirely of concrete, at a cost of approximately $5,000,000. In all, over 100,000 yards of concrete will be used. The cement will all be furnished by the Universal Portland Cement Company, which concern is just finishing its large plant near Pittsburg.

C. H. Gorley, Uniontown, Pa., has awarded the contract for the construction of a large dam, in which concrete will largely be used, to W. H. Wilkey, also of Uniontown. It is one of the largest cement contracts that has ever been awarded in Fayette County.

The contract for the construction of a number of large retaining-walls that will be built at Wheeling, W. Va., has been awarded to L. G. Hallock of that city.

The City Engineer of Ridgway, Pa., has awarded the contract for a long concrete retaining-wall to William Dickinson of that city. The same contractor has the contract for the construction of a heavy reinforced concrete bridge that will be built on the State road in the vicinity of Rolfe, Pa. It will be completed this fall.

With the Supply Dealers.

D. J. Kennedy & Co., 6366 Frankstown Avenue, Pittsburg, are very busy, and are enjoying an excellent fall business. They report a slight falling-off in business as compared with the past two or three months, but no more than is to be expected at this time of the year, when builders are commencing to think it is time for outdoor building to cease. One of the officials of the company stated to a representative of ROCK PRODUCTS that there has been considerable postponement of building in Pittsburg and vicinity due to the tightened money situation and the fact that builders are unable to place mortgages on property. Little or no increase in building operations is looked for before January or February, although a steady trade in the regular staple lines is looked for. Considering the existing conditions, the demand is very fair, and prices are being well held.

Another busy firm at the present time is the Duncan & Porter Company, 310 Morgan Street, Allegheny. This firm is furnishing a large share of the building materials required for a number of the finest residences and business blocks being built this fall in Allegheny and its many suburbs. Business continues to more than hold its own with them, and the conditions are as favorable as can be expected with a tight money market. As a member of the firm said, "There is plenty of business and lots of competition in getting it, while the only drawback is the difficulty in collecting money due on our accounts. This, however, is a condition that is felt by all in our lines, as well as in almost every other line. We have our share of business, however, and are very busy for fall."

Out at 2835 Smallman Street, Pittsburg, the yards and offices of McKallip & Co. are prosperous and lively-looking places, showing that this firm is one of the busiest in cement, lime, plaster, builders' supplies, etc., in Pittsburg. This fact was corroborated in an interview with a member of the firm, who said that they had a large amount of good contract business on their books and that the fall business this year compared most favorably with that of last year. The firm are supplying the building materials for a number of large business blocks being erected in the East Liberty District, and report fair demand for almost all lines of building supplies.

Heppenstall & Marquis, Thirty-third and Liberty Avenue, are very busy. Although there has been some decline in demand for some lines, business in cement, sand, gravel, patent plasters, etc., is good, and there is more business being placed than there was at the same time in 1906. Good November and December business is looked for.

At Houston Bros. Company it needed no questioning to show that this firm was busy. Everything around the place indicated business and a large amount of material was both going out and coming in over the Pennsylvania Railroad, the yards being located on this road at Thirty-third Street. The local business is also fair, showing but little sign of fall depression.

A busy firm over in Allegheny (now almost "North Side, Pittsburg") is the Patterson Coal and Supply Company, located at 1222 Grant Avenue. This firm report business conditions healthy and not falling off in the least. The demand for cement has shown a slight decrease during the past two weeks, and prices have been shaded slightly. A number of large contracts are held, which have long periods to run, and new business is being received in satisfactory volume.

The Baltimore and Ohio Railroad Company has decided to build a number of long concrete walls along that portion of the Pittsburg Division, which parallels the Monongahela River. The first of these sections of river walls will be built at Valley Grove. It will be about 600 feet in length and will be started this fall.

The Oliver Silica Sand Company of Warwick, O., has been incorporated with a capital of $25,000 by James F. Parks, Edward Oliver, J. H. Rhodes, F. W. Well and A. L. Atkinson.

E. H. Miller, A. K. Coulson, E. Coulson and V. VanWinkle, all of Pittsburg, have incorporated their building supply business as Miller & Coulson, which is the same name heretofore used in conducting the business. The firm is located at 605 Diamond National Bank Building.

The contract for the construction of a concrete bridge over Flat Run, near Zanesville, Ohio, has been awarded to Clifton Bros. of Zanesville. The structure will be reinforced throughout, and will cost about $4,000. It will be started at once and is to be completed on or before January 1.

The Pittsburg Construction Company has received the award of the contract for a five-mile stretch of State road between McKeesport and Irwin. A large amount of cement will be used in the crossings and culverts, retaining-walls, etc. The contract also calls for the construction of several concrete bridges. It amounts to about $50,000. The concrete work of various sections of the road will be started at once, in order to have this work completed before the cold weather arrives.

McLaughlin & McLaughlin, Pittsburg, Pa., have received the award of the contract for improving a number of the streets in the East End district. It calls for about 5,000 lineal feet of sidewalk, five feet in width, and for new curbing, which will also be of concrete. The same firm has also been awarded a contract for laying sidewalks in the downtown section of the city.

The contract for a 30-inch reinforced concrete sewer to be built this fall at Lancaster, Ohio, at an approximate cost of $12,000 has been awarded to Thomas Hill, Bellefontaine, Ohio. A large part of the work will be done this fall.

The Waterproof Cement Vault Company, Franklin, Pa., has been formed by Charles Limber, L. L. Limber, George J. Limber, Harry A. McClimans and Samuel Burgard, all of that city. The new company will manufacture concrete burial vaults on a large scale, as well as concrete blocks and columns of all kinds.

L. P. Boyles of the Drake Standard Machine Company reports a good business in their line and prospects bright. The Drake Company are progressive in their line of manufacture and always alert for improvements that will be of benefit to the cement industry at large.

GREATER NEW YORK.

NEW YORK, Nov. 18.—The general situation in New York shows no improvement. Building operations are practically at a standstill. Only such building work as seems to be absolutely necessary is being continued. Interviews with the cement manufacturers, builders' supply men and contractors elicit the information that business would be good if it were not for the panicky talk. The city of New York is not advertising for bids on any new construction work and has practically stopped repairs. This is a condition of affairs which has seldom existed. There is less building going on in New York at the present time than for many years past.

The Hoosac Valley Lime Company, 1123 Broadway, say that business in their lines is practically at a standstill, as the contractors have called off the men from the jobs until the situation clears up. They say there is plenty of work, but the contractors have not the ready money to pay the men and have temporarily suspended operations wherever it was possible to do so. Collections, as a consequence, have been poor.

Orrin F. Perry of the Rockland-Rockport Lime Company, Fuller Building, says: "The situation offers no encouragement. We have plenty of orders on hand, but the contractors are calling the men off the building operations wherever they can. Were it not for the money situation we would have a tremendous business, and as soon as this clears up and the money gets into circulation again, contractors and builders will have to make up for lost time."

The Young Men's Christian Association, at their West Side branch, on Fifty-seventh Street, are giving instructions in structural engineering, structural drafting and detailing, estimating, plan reading and general building construction. Most of the students are clerks in the offices of architects and contractors, and some of them are real estate men. The instructors are successful architects, engineers and contractors. It has become known as the "Skyscraper School."

Work will shortly be started on the new building to be erected at Marion, N. J., by the H. G. Kotten Company, 120 Liberty Street, manufacturers of pneumatic tools. The company recently purchased a tract of land at Marion, 150 by 250 feet, and a building 75 by 150 feet is to be erected on the property.

It has been decided that the Hudson Memorial Bridge at Spuyten Duyvil shall be built of reinforced concrete. The revised plan, which has been accepted by the Municipal Art Commission, provides for a concrete arch 710 feet instead of a steel arch 815 feet. In all probability this arch will be twice the length of any other similar arch in the world today. For 100 feet on each side of the ship canal the arch will be 183 feet in height, with seven arches alongside, four in the Bronx and three in Manhattan, each 100 feet in width. The plans call for two roadways, one for pedestrians and vehicular traffic, and the other for an extension of the subway system. The estimated cost of the bridge will be $3,000,000.

The Raymond Concrete Pile Company have removed their offices to 140 Cedar Street, in the new West Street Building. This company's business has increased to such an extent that the change was made imperative.

John A. and James Q. McCarthy, dealers in builders' supplies, located for many years at the foot of Rivington Street, East River, have removed their offices and yards to the foot of Thirteenth Street, East River. W. A. Thomas has associated himself with this concern.

The Raymond Concrete Pile Company, through J. P. Savage, the general engineer, have secured the contract for furnishing the concrete pile foundations for the Long Island Railroad for the new conduit line in the North Shore yards at Long Island City. The conduit, which will be of concrete, will be 1,100 feet long, and will carry the feed wires for the electric system. This is said to be the first time that concrete piling has been used for this purpose, especially on a job of this magnitude. The Abbott-Gamble Company are the general contractors.

During the year negotiations for a settlement of the questions as to which mason trade, the bricklayers or the cement masons, shall do reinforced concrete work, have been proceeding, and a decision has just been rendered by the Arbitration Board in favor of the cement masons. These are the mechanics who lay cement sidewalks and floors, concrete foundations, and do all the various kinds of work that is done with concrete. The old-fashioned way was for a mason to do everything in the line of masonry—bricklaying, cement masonry, tile masonry, stone masonry, plastering and lathing—and this is still the rule in small places. But here in New York a bricklayer must not do cement work, tile work, plastering, nor anything but bricklaying.

CLEVELAND AND NORTHERN OHIO.

CLEVELAND, O., Nov. 15.—Building operations in this section of the State still continue active, despite the widespread effects of the financial flurry. New undertakings have not been started to any great extent, but the work in hand is urgent, balancing up conditions to a nicety. Consequently no particular slump has been felt in Cleveland or the cities and towns surrounding it. It is expected, however, that before many weeks the snow will be here and outside operations at least will have to be suspended. The country here has been favored with an extremely open fall. There has been little rain, and no snow to speak of.

Cleveland stood fourth among fifty American cities for October in building operations. This was due largely to the fact that the permit for the new County Courthouse was taken out just before the close of the month. This made up $2,972,000 of the total $4,200,000 of permits—an increase of 218 per cent over a corresponding month a year ago.

The cement market has been off during the past month, the demand falling off about ten per cent. This is not surprising in view of the financial flurry and the fact that the building season is rapidly nearing a close. Portland cements have taken a drop of about five cents a barrel delivered in sacks. Portland is now selling at about $1.70 delivered. Natural brings about eighty cents and slag cement about $1.20. President Kling of the Cleveland Builders' Supply Company says there is an overproduction of cement going on and that some of the mills will have to slacken up a little until the building season opens again.

Andrew Dall & Son have entered into a contract with the Kittanning Pressed Brick Company for 17,000,000 brick. Of these about 7,000,000 or 8,000,000 will be used in the Courthouse foundations, the balance being employed in the construction of interior walls. The same contractors have been awarded the additional contract of draining the foundation at $30,000. This will require an immense amount of tile and pipe. The Dalls were given the contract in preference to others because it was felt that the presence of an outside contractor on the job might delay the work. The mammoth new $4,000,000 courthouse must be finished complete in about twenty-eight months from this date.

Another big public job which will go ahead this winter is the finishing-up of the interior of the new Postoffice. The placing in of partition walls and other roughing-in work will cost close to half a million dollars. To finish the building throughout will require $1,500,000. At present there is only $750,000 available. This will be used until Congress at its next session votes sufficient funds to finish the work. Last month the contractors put in bids on the interior work, and these are being scrutinized at Washington. It is expected that the successful bidder will be notified very soon. Three bids for the mason and partition work were made. John Gill & Son of Cleveland bid $63,968; John Pierce Company of New York, $59,000; A. B. Stannard of New York, $92,867. Pierce also bid the lowest on mechanical equipment, $129,000. Other bidders were L. H. Niehause, of Pittsburg, $142,550; S. Forth & Co. of Philadelphia, $165,000; E. H. Abadie Co. of St. Louis, $193,974; Chafer Company of Cleveland, $179,162; John Gill & Son, Cleveland, $172,460.

Matters here are materially helped through the immense amount of public work under way. In addition to the Courthouse and Postoffice the city is building a new West Side markethouse, two hospitals and a number of schools. Preparations are being made to award the contract for the superstructure for the markethouse. The C. H. Fath Construction Company are well under way with the concrete and brick foundations. Hubbell & Benes, the architects for the new markethouse, claim that it will be one of the finest in America when completed. There will be a gigantic clock tower on one corner equal to thirteen stories in height. The main room of the markethouse will be surmounted by what is claimed to be the largest vaulted roof in the country. This will be 60 by 250 feet. At either end of this room there will be large windows. Citizens have already under way a project to insert stained glass panels. The general style of architecture will be of the classic order.

MEMPHIS AND THE SOUTHWEST.

MEMPHIS, TENN., Nov. 18.—So much construction work of a general character is going on in Memphis this fall that the gamblers' little money scare up East did not touch the builders' supply trade in this city. A good deal of work for the county, for the city and public organizations, clubs, schools and churches is being pressed to completion or just inaugurated, and there is every indication that the winter months will be full of activity. If a dull season is on the way to Memphis, it certainly will be detained in its arrival until next summer.

Charles R. Miller & Co., contractors, will build a reinforced concrete reservoir with a capacity of 50,000 gallons for the new auxiliary plant at Central and Tanglewood Avenues, to cost about $8,000.

The Memphis office of the Newsom Crushed Stone and Quarry Company is now at 500 Bank of Commerce and Trust Building. W. S. Brian is agent in charge. This concern, which has its headquarters in Nashville, is doing construction work and furnishing supplies to other contractors over quite a range of territory.

The Weber Concrete Company, a branch of the Weber Concrete Chimney Company of Chicago, have established offices in the Randolph Building here, making Memphis their headquarters for the territory embracing West Tennessee, East Arkansas and the State of Mississippi. The company already had offices in a number of the larger cities. The Memphis company is capitalized at $250,000. Its officers are: Gordon P. Nash, president; R. T. Fant, vice-president; B. E. Jarrett, secretary and treasurer.

The Lowerre Sand and Gravel Company of Muskogee, I. T., has been incorporated with a capital stock of $200,000, with $25,000 subscribed. This company recently completed two big towers on opposite banks of the Arkansas River, near Hyde Park, to transport gravel by cable from the Grand River side of the Arkansas to the west bank, where their yard is located. For securing sand they have a large barge equipped with machinery for drawing it from the bed of the river. The principal business of the company will be dealing in sand and gravel. George H. Lowerre, Jr., is president and treasurer; T. D. Reason is vice-president and P. H. Slattery is secretary.

The Smith Center Construction Company of Smith Center, Kan., is manufacturing cement blocks for well curbing. They are proving quite popular in Kansas. Henry Smith is manager of the company.

J. C. Fisher is building a $10,000 gypsum mill at Okeene, Okla.

Guill & Mayden is the name of a new contracting firm at Junction City, Kan., which will do cement and granitoid work of all kinds. A. P. Mayden has been doing work of this character at Junction City. Mr. Guill is from Fort Scott.

NEW ORLEANS, LA.

NEW ORLEANS, LA., Nov. 18.—Concrete in one form or another is steadily gaining ground in this city for all kinds of structural work. It is used to build levees, sea walls, fences, houses entire, and now even tombs are being built of cement blocks and concrete. None of the modern buildings are erected without the use of more or less cement.

The Hollow Concrete Block Manufacturing Company has moved its office from Decatur Street to the factory yards, Broad and Toulouse Streets. Some changes have been made in the official force, or, rather, some new men have been added. The manager is A. W. Nyquist. C. B. Jolly, lately of Chicago, has cast his fortunes with the company and has become one of its most enthusiastic workers. Mr. Jolly, learning the enormous prices paid for granite and marble tombs, introduced the hollow concrete block for this purpose and now has several very handsome ones in course of construction at a cost very much less than the granite tombs. Where the latter would cost $4,000 or $5,000 the concrete ones will cost possibly the same number of hundreds. This company has closed the contract for the building of another handsome church and several residences. Work of all kinds is brisk with them. Mr. Jolly says that the outlook is good for a fine winter's work. They use the Pettyjohn machinery.

Concrete manufacturers both in block and reinforced work are having difficulty in getting cement, owing to the car-shortage. The same difficulty is experienced in getting crushed stone. The sand is here in abundant supply. It is brought from the Mississippi River and Lake Pontchartrain in schooners, up through the canals, or basins, as they are styled here, to the very heart of the city, and is easily delivered wherever wanted.

BUFFALO, N. Y.

BUFFALO, N. Y., Nov. 19.—The directors of the Perry Sand Company have filed a certificate of incorporation in the office of the County Clerk, Buffalo. The concern is capitalized at $10,000, and its directors are Daniel J., George D. and Morgan G. Perry, William J. Kingston, Howard Gerkin, all of Buffalo, Albert Webster of West Henrietta, N. Y., and Andrew Webster of Batavia.

Howard McComb and Charles Whitmore are the stockholders who recently organized the Niagara Concrete Company of Lockport, N. Y. The concern intends to manufacture concrete blocks for building purposes.

A cement cellar proved very beneficial at a recent fire which destroyed most of the plant of the G. E. Ryckman & Sons Wine Company at Brockton, N. Y. Despite the heavy loss in the other sections of the building, valuable wines stored under this cement flooring were saved.

Welland, Can., has been enjoying a building boom for some time. Among those who have been profiting by the industrial growth of the town are W. G. Somerville & Son of Welland, who carry a line of builders' supplies, including Portland cements, gravel, sand, lime, concrete pipe, plaster, stone and similar materials. Marcus Vanderburg of the same town has a similar stock.

The Welland County Lime Works have elected the following officers at Port Colborne, Ont.: President and treasurer, John A. Reeb; secretary, O. C. N. Kanold; vice-president, William Reeb; directors, Eugene, T. E., William and John A. Reeb. The election was necessary owing to the death of John Reeb, Sr.

Contractor Hogan's cement plant of Port Colborne, Can., is making concrete blocks. Mr. Hogan secures Buffalo.

The sisters of the St. Mary's Academy and Industrial Female Seminary are to build a $400,000 school in the vicinity of Walden Avenue and Doat Street.

In October buildings were begun in Buffalo that will cost more than $600,000. The figures for October, 1906, were $493,510.

The total value of new buildings erected in Schenectady, N. Y., for the first nine months of 1907 is more than $1,000,000 greater than the figures for the corresponding months of 1906.

SYRACUSE, N. Y.

SYRACUSE, N. Y., Nov. 16.—The Syracuse Wall Plaster Company has been incorporated with a capital of $25,000 and has broken ground for a factory at Lodi and Center Streets, which it is proposed to have in operation January 1. The output will be called "The Syracuse." The site purchased by the company has a frontage of 225 feet on Lodi Street and extends back to the Oswego Canal with shipping facilities furnished by both the canal and the New York Central Railroad. The building will be 41x72 feet in dimensions and three stories high. Concrete and brick will be used in its construction. On the site there is a storehouse, 60x135 feet, to be used in the builders' supply end of the business. The incorporators of the company are: William F. O'Connor, Otto Johnson and Caroline Johnson. The president and treasurer is Mr. O'Connor, and Mr. Johnson is the vice-president and secretary. Mr. O'Connor has been connected with the Paragon Plaster Company for fifteen years, serving as secretary of the company for three years, and Mr. Johnson has served as superintendent of the Paragon plant since its establishment.

J. R. McCullock of Albany will have charge of the good roads work in several counties, including Onondaga, with headquarters at Syracuse. Many contracts have been let, and others will be let.

Hill & Van Wagner have resumed the making of cement blocks at the old Penn & Lee plant. Their sidewalk work has been completed for the year. This has been the best season in the history of the city for sidewalks, a rule being now enforced prohibiting the laying of wooden walks. It is thought that next year will be still better.

The work of the Consolidated Engineering and Construction Company in this vicinity has been pretty well closed up. The stadium at Syracuse University is practically completed.

The Onondaga Pressed Stone Company has had an excellent season. They are now building a three-story apartment house.

The plant of the Onondaga Litholite Company was somewhat damaged by a fire recently which started in the plant of the Mills Oil Company adjoining.

The Hudson Cement Company, controlled by Syracusans, has been selling a large quantity of cement in Syracuse.

THE TWIN CITIES.

MINNEAPOLIS, MINN., Nov. 17.—The building business at this time is largely in completion of work previously planned, arranged for or started. Very little new work is being now inaugurated. The season has something to do with the situation. Frequently November is a fairly busy month, many taking advantage of the completion of work and the consequent release of workmen rather than attempt to do building earlier when labor is fully employed and is likely to be at a premium. There are rumors to the effect that building materials are going off—some anticipate a slump of 25 to 40 per cent. This is baseless talk, but serves to encourage intending builders to wait in the belief that lower prices are coming.

There has been the customary fall scarcity of cement, owing to the rush to finish up work requiring cement before cold weather sets in. And so instead of there being any decline the article is at a premium, it being more a question of getting the goods than of the cost. Cement dealers have been worried constantly by intending buyers to furnish them with stocks, and have made every turn possible to get some, but with indifferent success. Some have made trips to other cities and to the mills for the purpose of expediting shipments.

Other materials are *in statu quo* at present. The car-shortage is having some effect upon deliveries, though as a general thing there are sufficient stocks to serve current needs.

The Columbia Silica Company of Portage, Wis., has been formed by F. H. Runkel, A. J. Calkins and C. P. Jaeger.

James G. Houghton, Building Inspector of Minneapolis, has become president of the International Society of State and Municipal Building Commissioners by the retirement of F. A. Pittman, Building Inspector of Atlanta. Mr. Houghton is a member of the committee on laws and ordinances of the National Association of Cement Users.

The New Ulm Stone Company of New Ulm, Minn., will operate its crushing-plant until late into the season.

H. B. Hasbrouck of Omaha has gone with the new Northwestern States Portland Cement Company, which is just completing its plant at Mason City, Iowa.

The city of Great Falls, Mont., has had a tiresome experience in the work of paving Central Avenue. The contract has been let once or more and has been advertised several times, only to be held up by some circumstance or other. Late in the summer the Kettle River Quarries Company of Minneapolis took the contract to do the work with creosoted wood blocks upon concrete base. This material had not been considered before, but a Council committee found similar work elsewhere satisfactory and the contract was let. The company astonished the city, which had grown accustomed to expecting delays and inattention to the work, by taking hold in a business-like way and pushing the work to completion. So surprised were the members of the Council that they went to the length of passing a formal vote of thanks to the company for the satisfactory and expeditious manner in which the work was done.

Building permits for October in St. Paul were about double the amount for the same month a year ago, being $1,013,322 as compared with $571,204. The total for ten months shows a gain for this year of about $1,000,000.

The Kettle River Quarries Company have made an announcement at Sandstone, Minn., that the company will not reduce their force during the winter nor cut wages.

The Brayton Engineering Company of St. Paul, Minn., have the contract for the erection of a reinforced concrete factory for the Waldorf Box Board Company in the Midway district, to cost $130,000.

Improvements will be made to the building of the Town and Country Club to cost about $14,000. E. L. Masqueray is the architect.

PHILADELPHIA.

PHILADELPHIA, Nov. 18.—The cement market is comparatively quiet. A general falling off of activity is usually expected at this time. There is considerable concrete work contemplated, and when the settlement of the financial situation shall have been effected there will no doubt be lively times again in this industry. A large amount of work is going on in concrete building, and consequently there is quite a quantity of cement used right along. It is evident that cement values have reached rock bottom, as the cement manufacturers have the situation well in hand. They learned a bitter lesson in 1904, when they made cement throughout the winter and in the spring found that had they waited they could have made it much cheaper. More than half the largest Portland cement manufacturers in the Lehigh Valley district have now one-half of their capacities out, and this they will keep out all winter. The falling-off in building work is having its effect at present on the lime and other building supply lines, but these industries have had a prosperous year and are now closing up odds and ends. The plasterer is having his inning at this time and is rushing work before the cold weather comes on. Conservative merchants do not regard the present quiet condition as alarming.

The Whitehall Portland Cement Company, 1722 Land Title Building, are not troubling over the trade situation, but hustling right along undisturbed and getting a respectable amount of business. They recently engaged E. C. Bacon, formerly manager of sales of the Iroquois Portland Cement Company, New York, as traveler to look after the territories of Illinois, Wisconsin and the Northwest. Besides having the reputation of being an excellent salesman, Mr. Bacon is thoroughly posted in every department of the manufacture of Portland cement. He is now spending some time at the Whitehall mills, studying their methods in manufacturing Whitehall Portland cement, and their system of selling.

The Wm. G. Hartranft Company, 1112 Real Estate Trust Building, have been shipping quite a large amount of cement and are pleased with results so far this year. However, they admit that trade is slacking up somewhat.

The Vulcanite Portland Cement Company, 1230 Land Title Building, are not alarmed over the cement situation. They regard the falling-off of business at this time as nothing unusual and are complacently cleaning up old orders.

The Alpha Portland Cement Company, 910 Harrison Building, Henry Longcope manager, report business moving along quietly. They are not at all alarmed over the situation.

The Bonneville Portland Cement Company, 2029 Land Title Building, mills at Siegfried, Pa., have troubles of their own. It appears that this concern was purchased a few years ago by a combination of political leaders, who reigned supreme in this city, having control of all the important municipal contracts for paving and other improvements. However, the usual thing, a fight among themselves, occurred. As a result the differences were aired in court and Harry C. Loughlin, lawyer, and Louis Saller, retired merchant, were appointed receivers. Up to the present writing nothing definite has been consummated to adjust matters.

H. J. Pickering of the Garden City Sand Company, Chicago, recently visited old friends in this city while on a trip to New York.

The General Fireproofing Company of Youngstown, O., recently removed its Philadelphia office to 794 Drexel Building, where they have large, airy and comfortable quarters, and where F. C. Fowler, the district manager, will always be glad to see the company's many friends.

The National Fireproofing Company, 317 Land Title Building, have just been awarded the contract for the hollow-tile fireproofing of dormitory No. 24, University of Pennsylania. Cope & Stewardson, architects; Wm. R. Dougherty, general contractor. They have also started work on the hollow-tile floor arches, Young Men's Christian Association Building, on Arch near Fifteenth Street. Horace Trumbauer, architect; James G. Doak & Co., general contractors. This building is nearly a million-dollar proposition and the second largest building in course of construction in Philadelphia. It is also reputed to be the best planned and most modern Young Men's Christian Association Building in the country.

It is announced that Harrisburg's first all-concrete house is being finished on Fourth Street near Cranberry by H. Homer Matter. It is a four-story and mansard roof, and the foundations, basement and walls, as well as facing, are all of concrete.

Plans were filed on November 7 for a three-story building for Bridgman Brothers Company, to replace the faulty factory building that collapsed in July, killing two workmen. It will be of reinforced concrete construction. Milligan & Webber are the architects and Moore & Company the builders. The cost will be $18,000.

The A. Schoenhut Company, toy manufacturers, have purchased the eight dwellings from 2420 to 2434 Sepvira Street, on the site of which they will build a large addition to the present plant, at 2215 Adams Street. The ground acquired measures 120 by 60 feet, on which a five-story basement factory, of brick and reinforced concrete, will be erected. Plans for the factory are being prepared by Ballinger & Perrot, architects. The addition will cost about $50,000.

Dukring, Okie & Ziegler have prepared plans for a concrete garage, 21 by 30 feet, at St. Martins, Pa.

CHICAGO.

CHICAGO, Nov. 20.—Building material supply men are bringing to a close their operations for the year. The financial flurry has struck them at the tail end of their season and has hurt them some, though not as seriously as it has other lines of trade. There is little new work being started now, and the jobs that are in course of construction are being pushed as rapidly as possible by the contractors, so that they may have the roofs on and everything under cover by the time the first real winter weather strikes them. Building operations in Chicago were rather a disappointment this season. While there has been a fair amount it was far behind last year and not up to expectations. The cement show is the principal topic of conversation now, and it is arousing considerable interest among the cement and concrete men.

The new armory, it has been decided, will not be used for the Republican convention, and it will be constructed of brick instead of concrete, the appropriation not allowing the use of a better material. There will be considerable concrete used, however, in floors, foundations, etc. Bids will be received next week by W. Carbys Zimmerman, State Architect, Steinway Building.

George W. Jackson is having plans prepared for a warehouse to be built on his property on West Jackson Boulevard, between Desplaines and Halsted Streets. It is to be 60x177 feet, three stories, of reinforced concrete construction, and will cost $50,000.

The Steele-Wedeles Company, wholesale grocers, will build an eight-story building at the river and Dearborn Avenue, 80x184. It will cost $300,000.

The Jewell Tea Company will erect a building at the corner of May and Washington Streets, to cost $125,000. All details have not been completed.

H. A. DuPont of the DuPont Powder Company, Wilmington, Del., will improve his property in this city by erecting a building at the corner of Twenty-second and Union Place. It will be seven stories high, 125x150, and cost $200,000. Plans are being prepared by Architect Fritz Foltz.

The Hills-Benedict Linseed Oil Company is having plans prepared for an oil plant to be erected at Loomis Street and the river. It will include several buildings and tanks. The total cost to be $150,000.

Architects Marshall & Fox are preparing plans for a six-story warehouse for A. C. McClurg & Co. It is to be on Ohio and St. Clair Streets. It will be 240 by 109 and cost $250,000.

One of the largest and finest apartment buildings in this vicinity will be erected by Harvey T. Weeks & Co. at Evanston. It will be located at Judson and Davis Streets. It will be 175 by 210 feet, three stories high, and will cost $300,000.

The 1907 Hotchkiss Directory of Recognized Lumber Dealers and Masons' Supply Dealers of Illinois is ready for distribution. It contains about 1,600 names. Its supplemental features include the grading rules for lumber; the mechanic's lien law fully explained by E. H. Adams, and the car service rules for the State of Illinois. It also provides the retail dealer with the grading rules as recognized by the Manufacturers' Association.

The Atwood-Davis Sand Company have had a change in their directorate, Burton Atwood having retired from the company. C. H. Brand is now the vice-president and Edwin Davis remains the secretary-treasurer. The president has not been selected. They have also made a change at their plant near Beloit, Wis. C. O. Bond, who was formerly superintendent of the Elgin plant of the Chicago Gravel Company, is now superintendent of this plant. During the winter they will add equipment to increase the operations for next year. They will, however, run their plant the entire winter. They are well into the bank and will not wash the product.

S. W. Curtis of the Garden City Sand Company says that he will have an interesting exhibit at the cement show next month. He has been at work preparing several samples of "Stonekote" and will show the varied colors in which this can be produced.

The Evanston Hydraulic Stone Company have had the orders for several large concrete block buildings and are now shipping the blocks for a powerhouse for the Sanitary Board. It is located on the Drainage Canal near Western Avenue. Superintendent Wall, in charge of the plant, has been very successful in the manufacture of blocks, having made it a careful and thorough study for many years. He advocates a very wet mixture of concrete in order to get a thorough crystallization of the cement and to fill the voids, making the blocks impervious to dampness. He has been using lake sand in facing blocks, but finds that it contains a reddish color which becomes dull after exposure to the elements. The plant will run all winter, as they are equipped to heat the factory and also the curing-shed.

Side Talk

One of the recent novels from the press of L. C. Page & Co., Boston, is "Mystery Island," by Edward H. Hurst, for several years an artist on the editorial staff of ROCK PRODUCTS, during which time he collected the material for this novel. The book reviewers speak very highly of this work. The editorial force of ROCK PRODUCTS appreciate it still more, because poor old Harry, who fought consumption for five years, finally passed away, leaving a heritage in "Mystery Island." While the plot is not a deep one, it is an attractive and interesting story which once read, will be passed along. It is so full of real life and so well told that the reader's attention is firmly held to the finish. We presume this spells success. Ask your bookseller for it.

The Century Cement Machine Company, 181 West Main Street, Syracuse, N. Y., announce that they are preparing to make a very large shipment of concrete block machinery to Shanghai, China, where the firm of Green & Pierce will take up the manufacture of concrete building-stone on a large scale.

The Contractors' Supply and Equipment Company (305 Old Colony Building, Chicago), who are sole agents for the famous Smith mixer, have issued, in substantial form, a little book which they call the "Mixer Manual" and which is intended for the special use of salesmen and operators of the Smith mixers. Besides many clearly put facts about their own machine, it contains much useful general information, including a department entitled "The Concrete Catechism," which is evidently the result of much study and thorough practical knowledge. Everybody interested in concrete should write to the Contractors' Company for a copy of this book.

The Sandusky Portland Cement Company (Sandusky, O.) announce that as a result of experiments made by their general manager, S. B. Newberry, and extending over a period of fourteen years, they are now prepared to guarantee their Medusa White Portland cement, of pure white color, to equal in strength, setting and hardening qualities the best gray Portland in the market. For this product they have built and equipped a special factory in Eastern Pennsylvania. This cement is to be used in the same manner as ordinary Portland. To produce white concrete or white artificial stone this cement is to be mixed with white sand, crushed white quartz, ground marble or ground white limestone. Those interested in concrete for ornamental architecture, etc., or in the production of colored concrete, or in stainless mortar for laying up stone or marble, should write to the Sandusky Company for their interesting pamphlet. The company also announce that their Medusa waterproof compound was used by the A., T. & S. F. Railway Company, in their concrete depot at Las Animas, Colo., and in their tie and timber treating plant at Albuquerque; also in the roof of the North Chicago Hardware Company, in a concrete reservoir for the Knickerbocker Ice Company and in the Chicago Junction as well as the Chicago and Northwestern track elevation work at Chicago. The compound has also been recommended by the engineer in charge for the new Phipps Natatorium being constructed in Pittsburg.

S. T. De la Marter, engineer, formerly with the Standard Construction Company of Chicago, has been engaged by the General Fireproofing Company, and for the present is located at the home office, in Youngstown, Ohio. Mr. De la Mater is a graduate of Cornell University, 1900, and through his connection with a large number of contracting firms has acquired a wide experience in reinforced concrete design and construction. Among his connections have been the Osborne Engineering Company, Cleveland, Ohio; Paul F. P. Mueller, the Falkenau Construction Company; Standard Construction Company, Chicago, and the L. P. & J. A. Smith Company of Cleveland.

The Nodamp Machinery Company, manufacturers of block machines, with offices at 415 Andrus Building, Minneapolis, was incorporated Sept. 10, with $50,000 capital. The officers are F. W. Tidball, president; D. J. Ames, vice-president, and J. T. Thurman, secretary-treasurer. Their sales, says Mr. Thurman, already represent a coast-to-coast distribution, their latest equipment going to Beaufort, S. C.

The Century Cement Machine Company (Rochester, N. Y.), makers of the Hercules concrete block machine, are arranging for a big display at the Buffalo convention. Stone of all sizes, shapes and designs will be made right before the eyes of spectators, and the operators will endeavor to prove that the Hercules is the best blockmaker of them all and that A. T. Bradley has solved the problem of properly proportioning and mixing concrete.

The Standard Dry Kiln Company (Indianapolis) claim for their channel-steel, roller-bearing drykiln trucks that they run more smoothly and easily than others because the rollers have cone-shaped ends while ordinary trucks have flat-end bearings which cause friction by jarring against the sides. In the Standard trucks only the sharp points come in contact with the frame, reducing the friction to a minimum. Standard trucks are made in a complete range of styles for all drykiln purposes and with forged steel, malleable-iron or cast-iron wheels, as desired. A catalogue will be sent for the asking.

It has been officially confirmed that Wm. Frank Hall, who successfully represented the Bradley Pulverizer Company, manufacturers of the Griffin mill, during the last seven years, has resigned and has accepted a position with the Lehigh Car, Wheel and Axle Works to further the sale of their Fuller-Lehigh pulverizer mill. Mr. Hall will establish his headquarters in the Trinity Building, No. 111 Broadway, New York.

Samuel H. French & Co. (Philadelphia), sole agents of the famous "Dexter" brand of Portland cement, report a growing popularity for their product. Users of cement are realizing now more than ever that in the long run the cheapest cement is not the lowest-priced, and that weak cement is a waste of money. What is known as "cheap cement" is often expensive far beyond the cost of the material and labor, involving also the risk of the structure and the builder's reputation. The "Dexter" brand is advertised for its safety, quality and true economy. French & Co. have just issued a new edition of their useful wall cards, "Proportions of Concrete" and "Portland Cement Sidewalks," which they will furnish free to any reputable dealer mentioning ROCK PRODUCTS.

The trade will be glad to learn that owing to reduction in the cost of material and their increased facilities for manufacturing the Kent Mill Company (170 Broadway, New York) have been enabled to make a substantial reduction in the price of their famous Kent pulverizers. Large capacity, great durability and small power requirement are the great characteristics of the Kent mill, and those in need of such equipment can secure valuable information by writing to the Kent Company, stating kind and nature of material to be ground, fineness desired and quantity desired per day of ten or twenty-four hours.

A valuable booklet for all who use or handle explosives is "Blasting Talks," issued by the Aetna Powder Company (143 Dearborn Street, Chicago), for the information and instruction of users of dynamite. It is a practical treatise on an important subject and will repay careful reading. Say that you saw it in ROCK PRODUCTS, and a copy will be mailed free.

Three little books of exceptional value have recently been issued for complimentary distribution by the Vulcanite Cement Company. Their scope and character are fully indicated by the titles of each, which are as follows: No. 6, "Economical Selection and Proportion of Aggregate for Concrete." No. 7, "Cement Sidewalk Paving Suggestions as to Method of Construction." Readers of ROCK PRODUCTS may have these valuable publications free of charge by addressing either the main office of the company, Land Title Building, Philadelphia, or the main sales office, Flatiron Building, New York.

"Making Air Make Money" is the title of a convincing little book explaining the Raymond system of grinding and separating. The principle of air separation is revolutionizing old methods both as to quality and economy of production where materials in powder form are required, and everybody interested and who is not already familiar with the Raymond system should write at once to the Raymond Bros. Impact Pulverizer Company, 141 Laughlin Street, Chicago, for their book. It's free to ROCK PRODUCTS readers.

The Henry S. Spackman Engineering Company (42 North Sixteenth Street, Philadelphia) make a specialty, as engineers, of designing all classes of manufacturing plants. They are also prepared to report and advise upon manufacturing processes, patents, etc. Their laboratories are under the personal direction of Dr. E. W. Lazelle, vice-president of the company, and their facilities for testing and investigating such materials as sand, lime and sand-lime brick are unexcelled.

General Catalogue No. 28 of the H. W. Caldwell & Son Company (main office and works, Seventeenth Street and Western Avenue, Chicago) is a handsome volume of 736 pages, including an index of 15 pages. It is a model for catalogue compilers and splendidly printed and illustrated. The Caldwell Company manufacture an excellent line of general machinery for industrial plants and make a specialty of machinery for transmitting power and for elevating and conveying materials in and about cement, rock-crushing, lime and plaster plants. Their lines in this respect are complete. The company was established in 1875 and needs no introduction to ROCK PRODUCTS readers.

The illustration herewith represents three Williams patent Universal grinders of the hammer type, No. 3 size, which were recently shipped by the Williams Patent Crusher and Pulverizer Company (Old Colony Building, Chicago) to the Superior Portland Cement Company, Baker, Skagit County, Wash., for the reduction of raw material in their new cement plant. Two of these machines are to take dry crushed limestone and shale as it comes from an ordinary gyratory crusher in cubes 1½ inch and smaller and reduce the same 95 per cent through 20-mesh for a tube mill feed. These machines will be the only preliminary grinders ahead of the tube mill in this plant. The third machine will reduce dry slack coal 95 per cent through 20-mesh tube mill feed. The capacity of this No. 3 machine varies from 6 to 10 tons per hour, depending on the grindability of the raw material. It is equipped with an automatic feeder driven directly from the main shaft of the grinder to a counter shaft on the back of the cover, thence to the feeder proper. The reduction of speed is from 1,000 R. P. M., which is the speed of machine, to 100 R. P. M., which is the speed of the feeder. The object of connecting the feeder direct to the main shaft is that in case of accident, such as blowing out of a fuse or the jumping off of main driving belt, the feeder stops as the mill stops, hence preventing any choking.

CRUSHING EQUIPMENT SHIPPED BY THE WILLIAMS PATENT CRUSHER AND PULVERIZER COMPANY.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

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No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copies of paper containing the advertisement.

EMPLOYEES WANTED

EXPERIENCED QUARRY CONTRACTOR

Wanted to handle a large railroad crushed ballast contract. Fine plant now running, owners have other interests; good opportunity for right man. Address "BOX 155," care ROCK PRODUCTS.

MACHINERY FOR SALE

CRUSHER, ENGINE AND BOILER

For sale. No. 6 Gates crusher, engine and boiler complete, in No. 1 condition. Now in operation but too small for present use.

AMERICAN LIME & STONE COMPANY, Tyrone, Pa.

BRICK MACHINE FOR SALE.

One Sodstrom cement pressed brick machine. New.
D. KILPATRICK, Morning Sun, Iowa.

MONTHLY BULLETIN

of the
INTER-STATE EQUIPMENT AND ENGINEERING CO.

We offer for sale:

1 complete Crushing Plant (7½ and 5), Austin Gyratory with power, new.
1 No. 5 Gates, K, practically new.
1 No. 4 Gates, B, elevator and screens.
1 No. 4 Gates, B, without screens.
1 No. 3 Comet Gyratory.
1 No. 4 Austin Gyratory.
1 No. 2 Gates.
1 10x18 Blake Jaw Crusher.
1 No. 40 Western Jaw Crusher with power, elevator and screens.

Write for prices.
LET US KNOW YOUR REQUIREMENTS.
We install plants when desired.
INTER-STATE EQUIPMENT & ENGINEERING CO.,
Old Colony Building, Chicago.

FOR SALE—ENGINES AND BOILERS.

BOILERS.

4—72x18, horizontal tubular, high pressure.
1—84x18, horizontal tubular, standard.
1—78x16, horizontal tubular, standard.
1—72x18, horizontal tubular, standard.
5—72x16, horizontal tubular, standard.
1—66x16, horizontal tubular, high pressure.
1—60x18, 6" riveted flue, standard
3—60x18, horizontal tubular, standard.
Sixty others, all styles and sizes.

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18x42 Hamilton.	16x20 Brownell.
18x36 Wright.	14x20 Atlas.
16x32 Buckeye.	14x14 Vertical.

Forty others, all sizes and styles.
Also pumps, heaters, tanks, sawmills and general machinery. Send us specifications of your wants.

THE RANDLE MACHINERY CO.,
1745 Powers St., Cincinnati, Ohio.

FOR SALE.

New 9x14 Vulcan dinkies at	2,500.00
New 10x16 Vulcan dinkies at	3,000.00
New 1-yd. clam shell bucket (for sand)	375.00
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Little Giant 1½-yd. traction shovel	3,250.00
No. 2 Smith mixer, engine and boiler on wheels.	675.00
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Bucyrus 70-ton shovel (new)	9,900.00
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54x54x16-ft. stone planer	950.00
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Sullivan channeling machine (new)	1,900.00
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12x12¼x14 Ingersoll compressor	725.00
Morris No. 10 D. C. pump and engine	500.00
Channon full-circle 1½-yd. excavator	4,000.00

Let me have your inquiries for Cableways, Cars, Rail, Rock Drills, Channelers, Traction Engines, Graders and Contractors' Equipment generally.
WILLIS SHAW, 171 La Salle St., Chicago, Ill.

FOR SALE.

One No. 2 American Clay Machinery Company's Giant Brick Machine.
One No. 2 Austin Gyratory Crusher.
One Noyes Bolting Machine.
One 8x10 Double Gould Vacuum Pump.
NEW YORK LIME COMPANY, Natural Bridge, N. Y.

COMPRESSOR, DRILL, ETC.

One 540-ft. McKiernan compressor.
Two 3¼ McKiernan drills.
One No. 4 Austin crusher with elevator, boiler and engine. EDWARD HELY, Cape Girardeau, Mo.

PLANT FOR SALE

COMPLETE CEMENT STONE PLANT.

For sale or lease. At Pensacola, Fla. Well equipped factory, warehouses, curing sheds, tracks, cars, power mixers and two complete Miracle outfits, cement bricks, paving tile, etc. Pensacola is a growing city and there is plenty of work for a competent man. I haven't time to devote to the business, but am willing to sell part interest to a good manager or lease on royalty basis. I am too firm a believer in the profits to care to sell outright. C. GUNTER ELMORE, Pensacola, Fla.

LIME STONE QUARRY.

For sale, in northwestern Ohio. Fully equipped to produce 300 yd. crushed stone per day. Also sand mill and concrete block factory, all in one. All doing good business. Owners have good reasons for selling.
Address BOX 179, ROCK PRODUCTS.

A SPLENDID OPPORTUNITY

For the right parties. Never before offered to the public. Seven acres land, large marble quarries, 2 large buildings, 3 lime kilns, capacity 30 tons per day; boilers, engines. Mills with output 25 tons per day marble dust. Private rail track into plant. Plenty water. Highest class artificial ornamental stone is made of this material by others—why not you? A fine hydrate lime proposition.

Plant now in operation with fair established trade. The present owner is a large real estate man and is not interested in the possibilities of this line.

Think of this—only 15 miles from the heart of New York City—54 trains per day. This is certainly the lime man's chance, especially the western man. Address
SUPERINTENDENT, BOX 512, Tuckahoe, N. Y.

MISCELLANEOUS

CEMENT WORKERS EVERYWHERE.

We want you to know we make White Metal Letters and Figures to stamp impressions of names or numbers in soft concrete sidewalks. Also Brass Letters or plates to imbed in cement sidewalks, curb, blocks, etc. Send for price list. H. W. KNIGHT & SON,
Box R, Seneca Falls, N. Y.

Ready November 7.

"FIELD SYSTEM"

By Frank B. Gilbreth

This book is written by Frank B. Gilbreth, one of the largest general contractors in the world, and contains 200 pages of rules and instructions for the guidance of his foremen and superintendents. The book in its present form, is the outgrowth of Mr. Gilbreth's twenty odd years of experience in the contracting business, and embodies scores of suggestions for economizing and for increasing the output of the men on the job. There may be a few who read this announcement who do not know that Mr. Gilbreth is the contractor who has made the "Cost-plus-a-fixed-sum-contract" famous; in doing so he has likewise made famous Gilbreth's "Field System", only a few excerpts from which have heretofore appeared in print.

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Send in your orders now for Gilbreth's "Field System"; 200 pages with illustrations; bound in leather; price $3, net, postpaid.

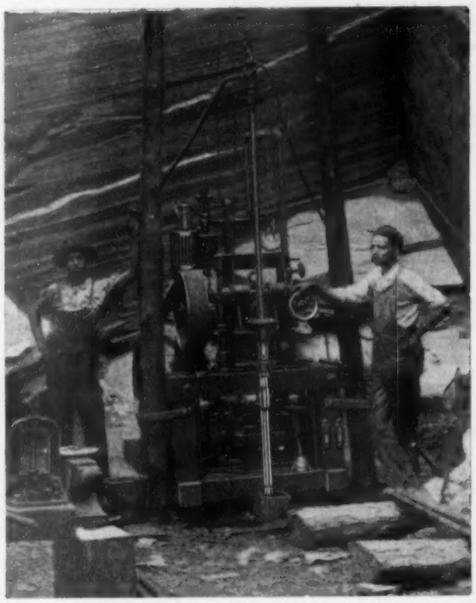
If you want sample pages, circulars or catalogs covering any class of books for engineers, architects, contractors or railway men, send us a postal card.

Francis Publishing Co., 355 Dearborn Street CHICAGO

THE DAVIS **CALYX** DIAMOND-LESS

CORE DRILL

For prospecting quarry properties, or deposits of limestone, cement rock, gypsum, etc., nothing can compare with the Calyx "Diamondless" Core Drill on grounds of speed, low cost and accuracy of record. Its judicious use entirely removes the element of chance, enabling the owner to "prove up" his property in advance, saving him the cost of misdirected development. It has never yet met a substance too hard for it to core with good economy and, while it removes larger and more perfect cores than any other known method, the cost per foot of hole is 30 to 50 per cent less. A complete Calyx outfit often costs less than a single "diamond" bit



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R. 32

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PURE CALCIUM HYDRATE

The Best for Every Purpose where Chemically Pure Lime Is the Indispensable Element.

Sand-Lime Brick

Difficulties can be Simplified and Overcome by the use of Correctly Hydrated Lime.

We offer the EXACTLY RIGHT article

MARBLEHEAD LIME COMPANY

Chicago - - Kansas City

Testimonials from Practical Experts Endorse Our Hydrate

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Peirce City White Lime

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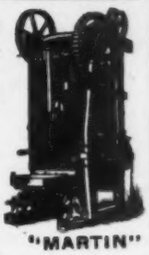
THE WHITEST, PUREST AND STRONGEST LIME IN THE WORLD
TRADE MARK
MANUFACTURED BY
PEIRCE CITY LIME CO.
PEIRCE CITY, MO.

Clay Working Machinery

Yard Supplies of all Kinds

CEMENT MIXERS
ELEVATORS
CONVEYORS
DRY PANS
CRUSHERS
BARROWS AND TRUCKS

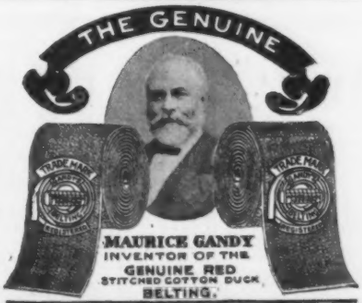


Steam or Animal Power Brick Machinery

"MARTIN"
DRAWER 887
LANCASTER, PA.

Farrington Expansion Bolts

The most secure fastening in concrete as well as in stone. Send for samples. H. Farrington, 45 Broadway, New York.



GANDY
PATENTED 1877

The Stone-Worker's Belting

would be an appropriate name for the Gandy because it certainly has been a friend to them. The sand and grit, that wears a leather belt down to a shoe string in a few months seems only to toughen a Gandy. Then too, they cost only about one third as much as leather, so that it means a big saving in a year's time. Send for our booklet—

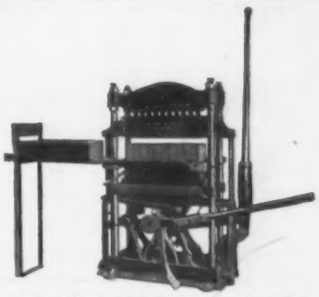
"Experiences with Gandy"—It's Interesting.

THE GANDY BELTING CO.
BALTIMORE, MD.

W. D. MEYER,
Manufacturer of
Marble White Lime
115 Delaware Street, QUINCY, ILL.

CORE DRILLING
FOR
QUARRY AND MINERAL PROPERTY
I am prepared to make complete investigations and reports. Write for prices.
A. T. THROOP, Consulting Engineer,
NIAGARA FALLS, N. Y.

THE HELM BRICK PRESS



Has no competitor when price and quality of product are considered.

One-half barrel of cement saved in a thousand brick by pressing a wet mix, making true concrete and securing complete crystallization, requiring less labor in curing.

10,000 Pressed Brick or 2,000 two-piece blocks, 2,000 one-piece blocks.

Our guarantee and liberal offer furnished in booklet 8-A, complete equipment for brick and block plants.

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(State Bank Bldg.)

THE CAPPON PROCESS
(CALCIUM CHLORIDE SYSTEM)
FOR MAKING
Hard Plaster, Artificial Stone and Marble, Etc.
Without the use of gypsum, is of interest to all lime manufacturers
THOMAS W. CAPPON, Patentee
No. 881 E. 141 Street NEW YORK

Limestone and Shale

FOR MANUFACTURE OF

Portland Cement

ON THE

Illinois Central Railroad

IN THE

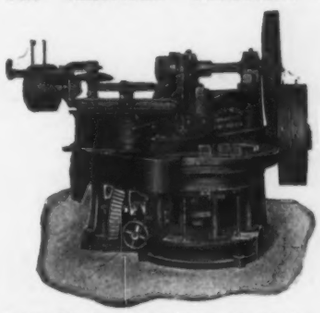
WEST AND SOUTH

Coal, Water and Good Labor

For Full Particulars Address

J. C. CLAIR, Industrial Commissioner
I. C. R. R. CO.
No. 1 PARK ROW, CHICAGO

The American Sandstone Brick Machinery Company,
SAGINAW, MICH.



Improved Saginaw Rotary Presses are now being built right or left hand, with extra table for making face and fancy brick, on which double pressure is exerted. Our patented brush does the work of one man, and keeps the plunger plates clean.

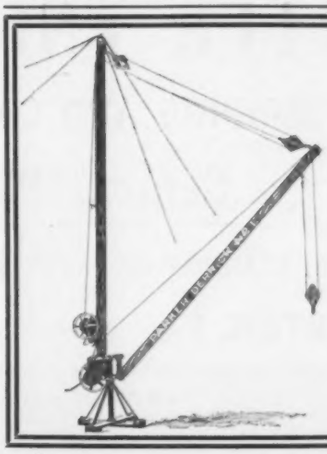
DON'T confuse our practical system with the so-called Scientific Systems. We confine ourselves to the manufacture of machinery for making brick from sand and lime; installing the complete plant, starting and operating at our expense until at least 100,000 brick are made before asking for a settlement.

Our Plants are installed under the supervision of practical engineers who know how Sand-Lime Brick should be made, and can be made.

We have practical plants running successfully, to show to prospective investors.

We are Not Scientists.

We produce results, because **we are the oldest practical Sand-Lime engineering company doing business in the United States,** and **we defy contradiction.** Incorporated April 1902.



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For Light Lifting Now in Use

CAPACITY 1500 AND 4000

Catalogue Free

Engines, Derricks, Cranes and Hoists

Parker Hoist & Machine Co.

Engineers, Designers and Manufacturers

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"From Missouri"

This is what a Missouri supply house writes about the quality of Nuttall Gears:

"It is true your prices are somewhat higher than quotations on the same kind of material elsewhere, but we want "Nuttall Quality."

R. D. Nuttall Co.
Pittsburg, Pa.

Flint Pebbles and Buhr Stone Linings.

French Buhr Mill Stones, Solids and Built.

J. M. Charles,
Sole Agent.
59 Pearl St.. NEW YORK, N. Y.

Bolting Cloths, Dufour Swiss Silk, Fine Wire Cloth.

Mixing and Sifting Machinery.

HERE IT IS

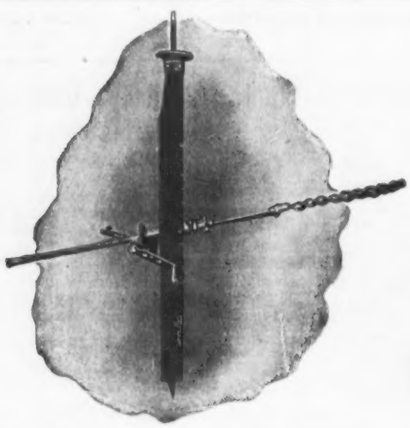
The All Steel Wheelbarrow for Feeding
Power Driven Concrete Mixing Machines
Has Not a Single Rival on the Market

SEND FOR A CATALOG

Manufactured by

The Ohio Steel Wheelbarrow Company

No. 25-35 SOUTH ST. CLAIR STREET
TOLEDO, OHIO, U. S. A.



HOWELL'S Celebrated Ball Bearing Heavy Geared Post Drills
for boring anything that an Auger will penetrate.

Awarded Gold Medal, St. Louis.

We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send to day for our handsomely Illustrated Catalogue.

HOWELL MINING DRILL CO., Plymouth, Pa. U. S. A.
(ESTABLISHED 1878.)

THE FULLER ENGINEERING COMPANY

DESIGNING AND CONSTRUCTING ENGINEERS

Cement Plants a Specialty

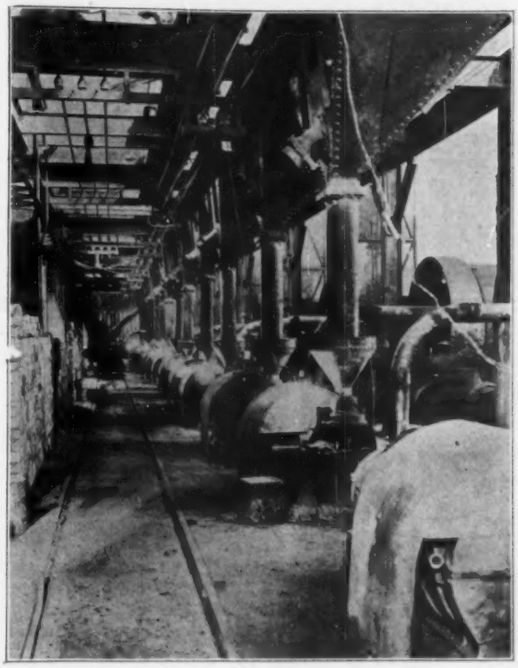
REPORTS, EXAMINATIONS AND ANALYSES ON RAW MATERIAL FOR CEMENT

WORKS: FULLERTON, PA. CONSULTATIONS SOLICITED OFFICES: ALLENTOWN, PA.

PULVERIZED FUEL COMBUSTION

IN

ROTARY KILNS



16 AEROS
In Plant of Universal Portland Cement Co., Buffington, Ind.

THE

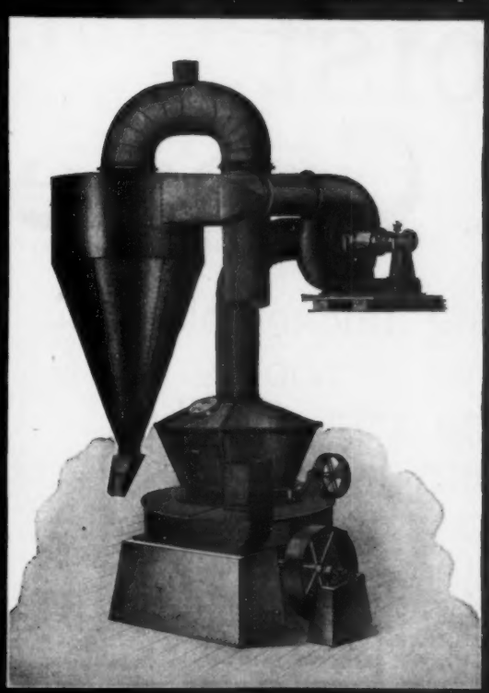
AERO PULVERIZER

Saves Space
Saves Coal
Saves Labor
Saves Power
Saves in First Cost

300 TO 3000 POUNDS PER HOUR
WILL HANDLE MOIST COAL

AERO-PULVERIZER CO.

82 Wall Street, New York



USE THE COUPON

SEVENTY THOUSAND
DOLLARS SAVED

In ONE YEAR for One Customer

By use of the

Raymond System of Air Separation

We may not be able to do as much as that for you, but if you *grind to powder* in your factory or mill *any material*, it is probable that we can show you under our methods a substantial saving. You may not realize, may never have figured, how much you could save if you eliminated all the waste of material in your grinding process, if you were to produce *finer* powder, if you were to dispense with extra auxiliary machinery, if you did away with all bolters and screens, which are not only expensive under first cost but are costly to maintain, replace and keep in repair, to say nothing of cost of extra and under our system, unnecessary labor. We have successfully solved the pulverizing problem for more than two hundred of the largest concerns in the world.

The figures we give at the head of this advertisement represent our success in one instance. They are the customer's figures, not ours. Give us some of your "hard nuts" in the grinding question to crack. It will cost you nothing to confer with us. But first write for our book.

"MAKING AIR MAKE MONEY"

It will tell you more than we can tell you in this limited space:

RAYMOND BROTHERS IMPACT
PULVERIZER CO.,
141 Laflin St., CHICAGO

SIGN THIS COUPON, TEAR OFF AND MAIL

RAYMOND
BROTHERS
IMPACT
PULVERIZER
CO.
141 Laflin St.,
Chicago

Please send your book "MAKING AIR MAKE MONEY"

Name _____

Firm _____

Address _____

35

Newsom Crushed Stone and Quarry Company,

MANUFACTURERS OF

Crushed Stone for Ballast, Concrete Work and Roadways, also Concrete Hollow Building Blocks.

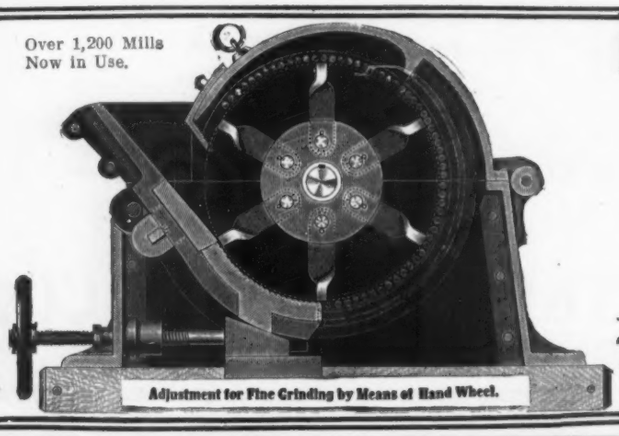
Sales Agents for Cement Block and Brick Machinery, Mixers, Portland Cement, Etc.

NASHVILLE, TENNESSEE.

We have built SEVENTY-FIVE HOUSES out of CEMENT BLOCK with ONE MAKE OF MACHINE, having used it in preference to ALL OTHERS,—knowing from ACTUAL WORK and EXPERIENCE that it is best suited to the work and MAKES EVERY SIZE, SHAPE and STYLE of blocks used in a building.

Write for Particulars of Our Various Lines.

Over 1,200 Mills Now in Use.



Adjustment for Fine Grinding by Means of Hand Wheel.

RAW MATERIAL GRINDERS

UNIVERSAL for Tube Mill Feed, 800 bbls. per day, 20 mesh, Horse Power 40 to 50.

VULCANITE for ½ in., ¼ in. and ⅛ in. grinding, taking 2½ in. stone. Capacity 15 to 25 tons per hour, Horse Power 35 to 40.

We also grind Lime, Gypsum, Coal, etc.

Write for Bulletin No. 12.

The Williams Pat. Crusher & Pulverizer Co.,

Old Colony Building, CHICAGO.

"Brownhoist" Locomotive Crane

Equipped with clam-shell loading bucket offers the greatest capacity as well as economy for handling sand and gravel in the pit. Crushed stone and screenings loaded and rehandled at minimum cost.

Advance Your Profits by Increasing the Output.

The Brown Hoisting Machinery Co.

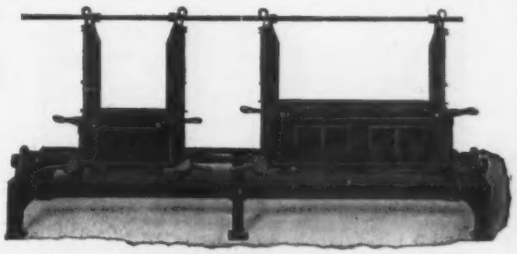
CLEVELAND, OHIO

CONCRETE BUILDINGS

We make the Hercules Concrete Block Machine in two sizes.

THE HERCULES REGULAR

will make blocks from two inches up to six feet; it will make water tables, steps, window sills, lintels, etc., and make them as they should be made—as solid as the rock of Gibraltar.



THE HERCULES REGULAR

MADE ON HERCULES

THE HERCULES SPECIAL

is a smaller machine than the Hercules Regular, but it is built exactly on the same lines and its mechanical action is identical with the large machine.

The Hercules Special will make just as good blocks—just as handsome blocks—as the Hercules Regular, but it will not make as large a block—that's the only difference.

The Hercules Special with complete outfit for building houses, manufacturing establishments, or any buildings, costs but $120.00.

HERCULES SPECIAL

The Hercules Machines are making the blocks that are going into the finest concrete buildings in the world. We will be glad to send our catalog to any reader of this paper upon request.

CENTURY CEMENT MACHINE CO.

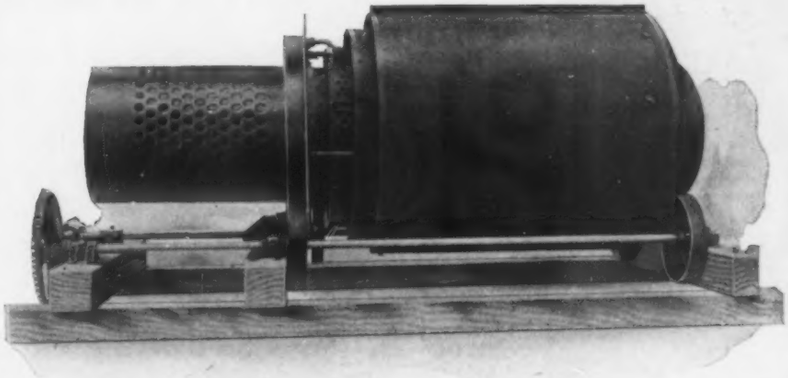
179 W. Main St., :: :: Rochester, N. Y.

John O'Laughlin's Screen

For Granite, Stone, Sand, Gravel, Coal, Coke

Or Anything Requiring Separation

THE SEPARATION OR GRADING OF ROCK AND OTHER MATERIALS TO POSITIVE SIZES MADE EASY.

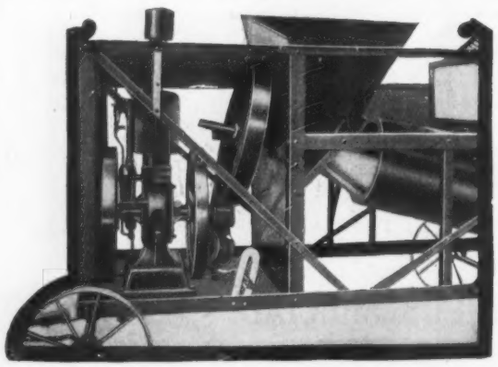


THE O'LAUGHLIN REVOLVING SCREEN reverses the old style method by introducing the material to be screened within a cylinder having coarse perforations, discharging instantly to a jacket with smaller perforations, which in turn discharges to another jacket with smaller openings, the same process being continued until five different separations have been secured as desired. The separation takes place at once on each of the concentric screens, so that the weight of stone in the screen is greatly diminished. There is no wear on screening plates except in the matter of rejections. It requires only one-eighth of the horse power to run this screen in comparison with the older style of equal capacity. Can be adjusted to make three, four or five separations as ordered, determined by the size of the perforations in each section. The number of separations required makes considerable difference in the price of the screen. There are more square feet of screening surface in one of these screens than in two of the old pattern measuring 40″ x 16″, and certainly the wear on the screen is less than one-twentieth. Each section of the screen can be reversed, end for end, and thus it will last an indefinite time and should easily separate 300,000 cubic yards limestone without any repairs, as we use heavy material. The inside or longest screen is 8 feet long and 36 inches in diameter, the next concentric screen is 7 feet 6 inches long and 48 inches in diameter, the next screen is 7 feet long and 58 inches in diameter, the next is 6 feet 6 inches long and 66 inches in diameter. With the exception of the inner screen each section is adjustable, and the screen is complete without it. The figures above give 492 square feet of screen surface, which is equal to two screens of the old pattern, 16 feet long and 40 inches in diameter. The strongest features of the O'Loughlin Screen are its durability, great simplicity, light running and its adjustability for separating into definite sizes granite, stone, coal, coke, sand, gravel and similar materials.

Let me know your requirements, what material you have to separate, the amount daily and the different sizes required, and I will furnish a complete estimate of cost, power required, etc. Testimonials and further information for the asking.

EVERY SCREEN IS FULLY GUARANTEED

JOHN O'LAUGHLIN .. .. Racine, Wisconsin



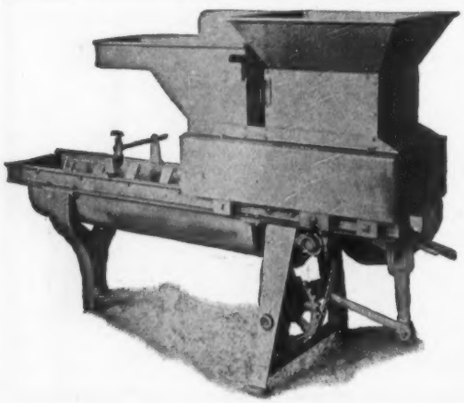
THE DEMOREST

LITTLE GIANT MIXER

On a 5 mile sewer job the contractors estimated that they could save $2,000.00 in moving expenses alone by using the LITTLE GIANT, besides putting in the work at 50% the cost with any other machine. Isn't it about time you "got wise" and saved some of the good dollars you are paying out. ONLY RESULTS count. CLAIMS of manufacturers amount to nothing.

WRITE FOR PRICES

BALLOU MFG. COMPANY, 35 High St., Belding, Mich.



The Standard Continuous Concrete Mixer

"The Mixer that Measures and Mixes."
"You fill the Hoppers, the Mixer does the rest"

CONTINUOUS, AUTOMATIC, FEED EXACT PROPORTIONS.

Materials first Dry Mixed, then "Tempered." Output instantly variable from O to Maximum at will of operator, thus insuring Fresh Material for each Block. Feeds Sand and Gravel Dry or Wet.

Write for description and prices to

The Standard Machine Co.,

KENT, OHIO

Peerless Brick Machine, 1907 Model.
Pat'd No. 811618.
The people who use the "Peerless" know its profit making qualities.
We will send you a list of the concerns who have already made money by doing business with us, if you wish.

Make Money

As others have already done it, by making Cement Brick upon a Peerless Brick Machine.

The **Price is Right.** *The* **Brick are Right.**

More Peerless Machines now in use producing a profit to the owners than all others combined.

WRITE FOR ILLUSTRATED CATALOGUE.

Peerless Brick Machine Co.,

100 Lumber Exchange, MINNEAPOLIS, MINN.

Save 75 Per Cent. of the Cost by Using a

Pauly Concrete Wall Machine

Enormous Economy Guaranteed on Every Job when used for the Construction of **Foundations, Basements, Cellars and Retaining Walls.** Substantial Contractors are Invited to Investigate. Address Machinery Department.

CONCRETE STONE AND SAND COMPANY

YOUNGSTOWN, OHIO

The Latest Concrete Development Machines and System for Manufacturing Pauly Fireproof Pushed Tile, Perfected and Patented. Interested? Write Today.

SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH

The Recognized Leader the World Over!

"SMITH"

Smith Mixer on Truck with Steam Power.

The Montgomery Ward Building, Chicago, 750 feet long, 270 feet wide and 135 feet high, will be the

World's Largest Concrete Building

It will require in its construction 100,000 barrels of cement. The Architects, Messrs. Schmidt, Gardner & Martin, realizing the importance of a perfectly mixed concrete, wanted

The Best Mixer in the World

and, therefore, specified that the SMITH only be used in this mammoth contract. The SMITH is now on the ground, doing the work. ARCHITECTS who want to MAKE SURE should specify the Smith Mixer.

Study the Blades

and you will know why.

The SMITH doesn't merely slide, push or roll the material to be mixed, but cuts it apart with blades, lifts it up, pours it from end to end of the mixing chamber and forces it back and forth by a positive mechanism, giving it the greatest possible longitudinal movement.

Interior View of the Smith Mixer.

The SMITH does quickly with large quantities what no other machine or process can do quite so well even with small quantities. It is the perfection of mixing apparatus—**the quickest, most efficient, most durable, and cheapest in the long run.**

Made in all required sizes and with any desired power equipment.

Send for illustrated catalogue. IT'S FREE.

CONTRACTORS' SUPPLY AND EQUIPMENT CO.

New York Office, 170 Broadway — Old Colony Building, Chicago

SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH : SMITH

DON'T LOOK

ANY LONGER FOR AN OPENING TO MAKE MONEY
HERE IS YOUR CHANCE. BUY A

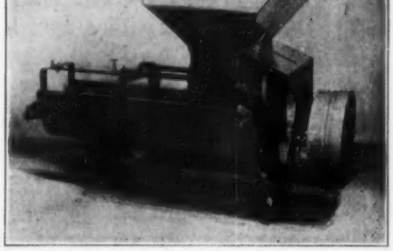
SCHENK

CEMENT DRAIN TILE MACHINE

There is more money made making tile with this machine than in any other kind of concrete work. We guarantee it to make from three to five thousand tile in ten hours, with five men and a 10-horse power engine to run it. Remember this is THE ONLY PRACTICAL CEMENT TILE MACHINE ON EARTH. HAVE YOU SEEN IT? MEET US AT THE CHICAGO CEMENT SHOW DECEMBER 17 to 21, where we will have on exhibition our

SCHENK TILE MACHINE AND OUR PERFECTION CONCRETE MIXER

This mixer is unexcelled for any class of concrete work. But for brick block and tile it is a mile ahead of them all. Come and see us or write



THE CEMENT TILE MACHINERY CO.

MANUFACTURERS OF CEMENT WORKING MACHINERY
22 Roth Street - - - WATERLOO, IOWA, U. S. A.

PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

Wet Process Face Down Damp Curing

The **PETTYJOHN INVINCIBLE** Machine does this, and is the only machine that does. Tandem Invincible makes two blocks at once. Price $65.00 and up. Single Invincibles, $35.00 and up. With our **Triple Tier Racking System** green blocks can be stacked three high direct from machine with inexpensive home-made rigging. Plans and blue prints free to customers. It economizes space, reduces off-bearing distance and above all insures slow, even, damp and perfect curing and bleaching.

Write for our latest edition of **"Stone Making,"** a book of valuable data, just off the press—FREE.

THE PETTYJOHN COMPANY

614 North Sixth Street Terre Haute, Indiana

In our Warerooms of 33,000 Square Feet Area, we carry 40 different kinds of machines used in the Concrete Block Industry and Associated Work. We have Hollow Block Machines from $21.00 up, the prices varying according to the outfit and grade. They include the most perfect machines ever produced. Our several types of Concrete Mixers are the best that money will buy.

OUR OFFER:—In order that you may carefully examine our complete lines and choose just what you want, **we will gladly pay your railroad expenses** and practically operate any or all of the machines in our demonstrating department, then if we cannot satisfy you fully as to their merit and price **we will pay your fares just the same.** Or, if you purchase a machine direct we will send a practical demonstrator to start your plant.
Write us today for our 80 page Catalog. Department C.

The United Cement Machinery Manufacturing Co.

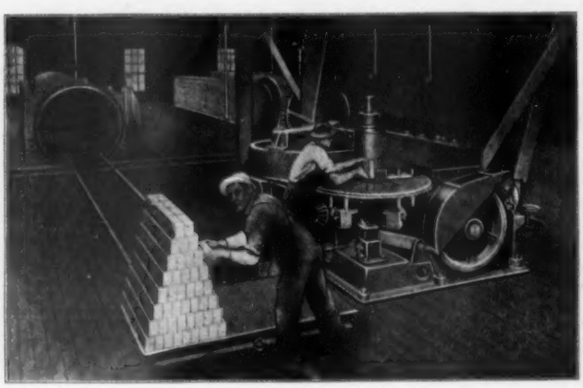
Maple and Front Streets COLUMBUS, OHIO

The Cleveland Brick Machinery Co.

Wickliffe, Ohio.

Manufacturers of

Sand Lime Brick Machinery Only



We claim to have the finest Sand Lime Brick Press that has yet been brought out, and we are sure we can convince you if you will see our machinery in operation.

Designers and Builders of Sand Lime Brick Plants.

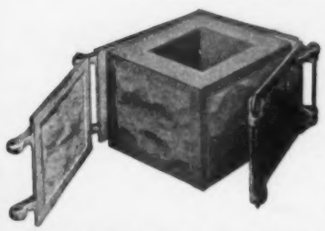
NEW PORCH COLUMN & BALUSTER DESIGNS

Exceptionally beautiful and attractive. The outfit is thoroughly practical and makes a splendid porch. Buy one and increase the profits of your business. Hundreds in use. Price for outfit very reasonable. We also manufacture Block Machines ranging in price from $50 to $250. Concrete Mixers, Brick Machines, Silo Machines, etc. Write for catalogue.

Northwestern Steel & Iron Works,
Box H, EAU CLAIRE, WIS.

Pier, Column and Chimney Moulds

THE BEST ROCK FACE DESIGNS

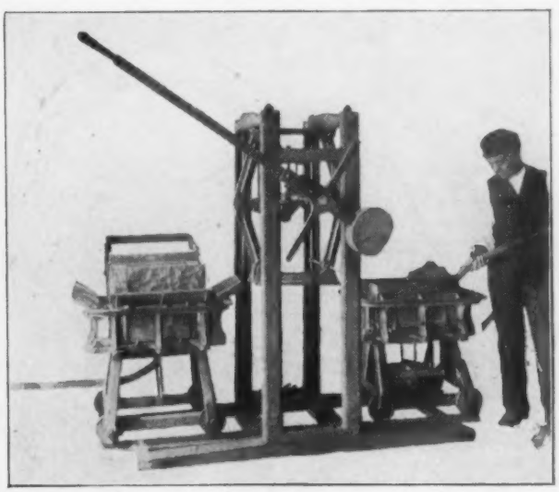


PRICES	
10x10″	$3.50
12x12″	4.00
14x14″	4.50
16x16″	5.00
20x20″	6.00

Write for descriptive circular

W. E. DUNN & CO., 339 Grand Ave., Chicago, Ill.

Somers' Pressure Block Machine



You are looking for the machine that will make you the most money. Our sales are principally to persons who have started into the business and have learned just enough about the great possibilities of the block business to be convinced that if they can get a machine that is speedy and at the same time one that will make any block the architect may call for, their financial success is assured.

The Somers' Machine will do it. 3 cents saved in labor on every block because of its great speed. Two machines operated successfully under one Press, thereby doubling the capacity. Operated automatically by levers. More moderate in price than the common Hand Tamp outfits. **Write for our Catalogue and prices.**

Somers Bros., Manufacturers

205 North Coler Ave., - Urbana, Ill.

Character and Economy

The Knickerbocker Co. Minneapolis, Minn., Oct. 11, 1907.
Jackson, Michigan.

GENTLEMEN:—Replying to your inquiry, we beg to say that we have been using two of your No. 6 Improved Coltrin Mixers, and mounted with 1½ H. P. Gasoline Engines, throughout this season, and can without any hesitation recommend them highly, both for the *character* of the work they do as well as the considerable *economy* which can be effected in their use.

We have used these machines on a great variety of work such as heavy concrete driveways, retaining walls, foundations, etc. The machine is readily moved about and set up, and with ordinary attention we find that it may be depended upon to run continuously.

We will doubtless be in the market for two or three more of these machines another year. Yours truly,

Nelson Bros. Paving & Constr. Co.
Harvey B. Smith,
Vice-Pres. and Treas.

IF YOU WANT THE BEST, WRITE US TODAY

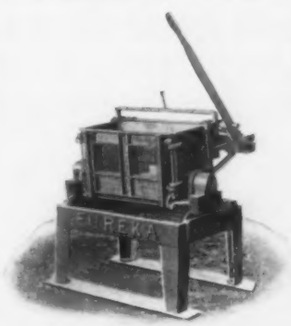
The Knickerbocker Company,

JACKSON, MICH.

The Improved COLTRIN Concrete Mixer

See our Mixer at the Chicago Cement Show, Dec. 16 to 21.

If You Want Big Profits You Must Investigate



Face Down

The Eureka Face Down Cement Block Machine, the only face down machine—that withdraws the cores **vertically** and **automatically by one pull of the lever,** permitting of use of one core in 16″ blocks—the use of a very wet mixture—and absolutely prevents sagging and breaking of blocks.

A Perfect Block—since none sag or break.

A Stronger Block—made of wetter mixture.

A Cheaper Block—water costs less than cement and the automatic features of the Eureka No. 2 give a greater capacity than on any other face-down machine.

We make any kind of a machine—any article that the concrete worker can possibly need.

The Automatic Temper Tile Machine and the Eureka Sewer Tile Molds make perfect cement drain and sewer tile very rapidly at a very low cost.

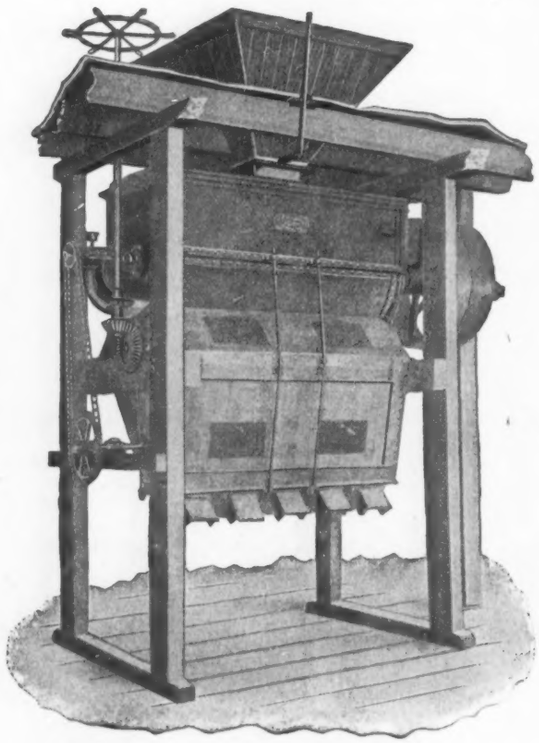
Send for free catalogs.

Our big instruction book and catalog—gives complete instructions for making any kind of cement products—and lists the most complete line of cement machinery ever put upon the market. Price 25 cents—worth many times its price to the cement worker.

BESSER MANUFACTURING CO.

Makers of the most complete labor-saving line of concrete machinery on the market.

313 Second Street **ALPENA, MICH.**



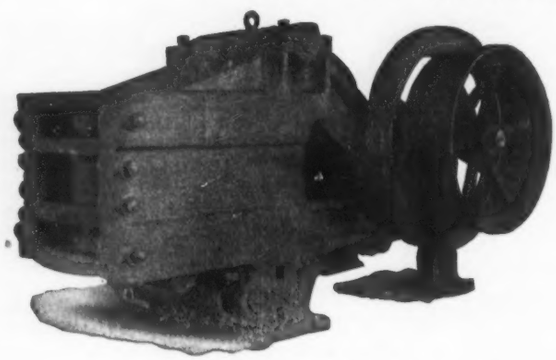
ENTERPRISE PLASTER MIXER

NOISELESS,
DURABLE and EFFICIENT.

For Mixing Hair Fibre, Wood Fibre and Retarder with Dry Plastering Materials.

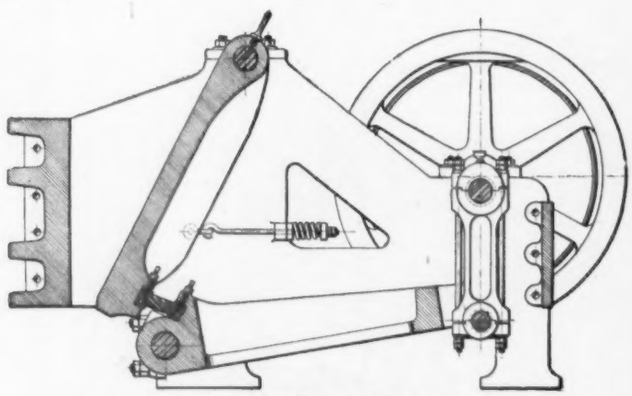
Calcining Kettles

Jaw and Rotary Crushers for Gypsum, Reels, Vibratory Screens, Hair Pickers and Transmission for applying power.



EHRSAM NO. 4 JAW CRUSHER.

This machine will handle large chunks and reduce from 30 to 40 tons of Gypsum per hour to 2½-inch maximum or smaller if wanted.



NO. 4 JAW CRUSHER, SHOWING SECTIONAL VIEW OF NIPPER.
The jaw opening at inlet is 18x28 inches.

The J. B. Ehrsam & Sons Mfg. Co.,

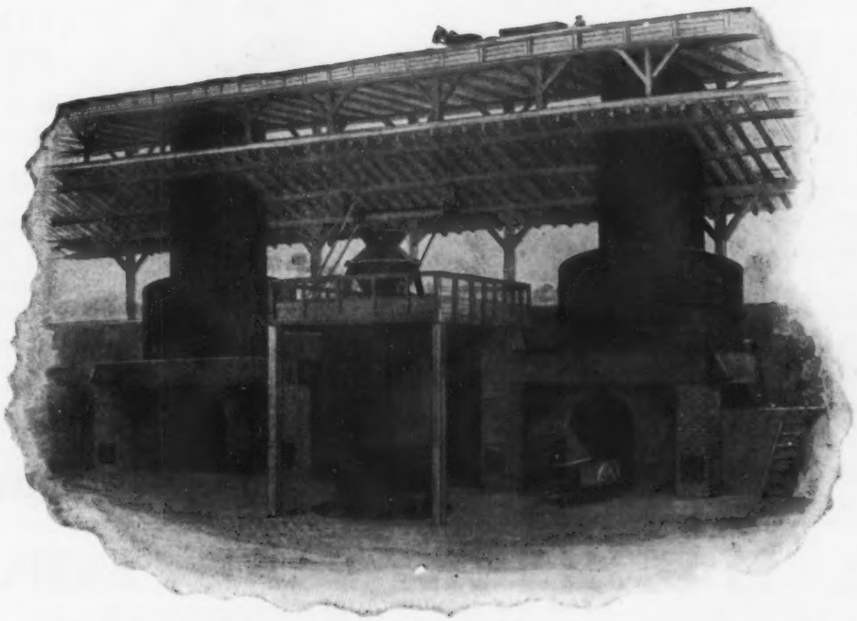
BUILDERS OF

COMPLETE EQUIPMENTS FOR PLASTER MILLS

Enterprise, Kansas

Gas Producer Plant of the New England Lime Co., Canaan, Connecticut.

PRODUCER GAS Makes the Best Lime It increases the Capacity of a Plant and Reduces the Fuel Bill



The Total Cost of This Installation Will be Paid for by the Saving Effected During the First Year of Operation

"We have equipped two plants for above company and are now equipping a third."

MORGAN CONSTRUCTION CO., Gas Producer Dept., Worcester, Mass.

QUALITY STRENGTH RELIABILITY QUALITY STRENGTH RELIABILITY QUALITY RELIABILITY STRENGTH QUALITY

Does Quality Appeal to You?
Does Prompt Service Appeal to You?
Does Reliability Appeal to You?

Then Buy

Your Stucco and Wall Plasters of

The American Gypsum Co.,

Manufacturers of

High Grade Stucco. "Anchor" Cement Plaster.
"Anchor" Wood Fibre Plaster.
Superfine Calcined Plaster.

General Offices, Garfield Building, CLEVELAND, OHIO.
Mills, Port Clinton, Ohio

Tell 'em you saw it in ROCK PRODUCTS.

H. L. Graf, Pres. E. T. Slider, Vice-Pres. & Gen'l Mgr. Osborne G. Reilly, Sec. & Treas.

New Albany Wall Plaster Co.
(Incorporated.)
MANUFACTURERS OF
Star and Wood Fiber Wall Plaster.
NEW ALBANY, IND.

We wish to announce to the trade that we are now running and at the present time, are in position to fill all orders promptly. Those who have used our goods claim it is the finest they ever had.

If you have not tried it, we are sure it would be to your interest to do so.

Prices always right and your orders solicited.

NEW ALBANY WALL PLASTER CO.,
NEW ALBANY, IND.

Cumberland Phone 408.
Home Phone 137.

PLYMOUTH CEMENT
AND
WOOD FIBER PLASTER
The Brand that's Made from Pure Gypsum Rock.
WRITE US FOR PRICES AND ADVERTISING MATTER.
Plymouth Gypsum Co.
Fort Dodge, Iowa

KING'S WINDSOR CEMENT
FOR PLASTERING WALLS AND CEILINGS

Elastic in its nature, can be applied with 25 per cent. less labor and has 12½ per cent. more covering capacity than any other similar material.

Buffalo Branch: CHAS. C. CALKINS, Manager
322 W. Genesee Street

J. B. KING & CO., No. 1 Broadway, New York

SPECIAL MACHINERY AND FORMULAS
FOR THE MANUFACTURE OF
WOOD FIBER PLASTER, FIRE PROOFING AND KINDRED PRODUCTS

We furnish the latest improved FIBER MACHINE, (fully patented), also FORMULAS, on a reasonable proposition. The strongest companies and oldest manufacturers are operating under my contracts.
WRITE FOR TERRITORY.

The Ohio Fiber Machinery Co.
J. W. VOGLESONG, GENERAL MANAGER.
Elyria, Ohio.

The American Cement Plaster Co.
Make Plaster that Gives Satisfaction.

Try a car and be convinced

We have six mills and can always fill orders

Main Office: Laurance, Kansas.

The Sheridan Stucco Retarder Co. Toledo, O.
MANUFACTURERS OF
STUCCO RETARDER
Quality, Price, Shipping Facilities, and Prompt Attention, Unexcelled by any. Drop us a line for Prices.

Plaster! Plaster!

IOWA HARD PLASTER CO.

HARD BY NAME
HARD BY NATURE
HARD TO BEAT
NOT HARD TO GET

IOWA HARD PLASTER CO., Ft. Dodge, Iowa.

GET THE BEST
Finest Line of Gypsum Machinery
MADE
KETTLE CRUSHER NIPPERS
ASK FOR CATALOG OF
MOGUL NIPPERS. OPEN DOOR POT CRUSHERS
Best Mills in the United States Have Them
DES MOINES MFG. & SUPPLY CO., Des Moines, Iowa, U. S. A.

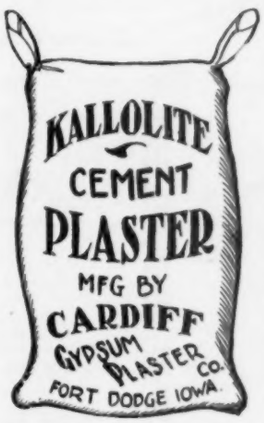
Tell 'em you saw it in ROCK PRODUCTS.

STUCCO—Lycoming Calcining Company

Garbutt, Monroe County, N. Y.

Enlarged, Re-equipped, Better and Larger than ever. Capacity, 250 tons per day. First Stucco mill built at Garbutt. Now located on two R. R. systems. Shipping facilities unsurpassed. Ten wall plaster Companies now using our Stucco exclusively, under contract. Write for price.

MAIN OFFICE, - - - - WILLIAMSPORT, PENNA.



KALLOLITE CEMENT PLASTER

IS MANUFACTURED FROM THE PUREST GYPSUM ROCK FOUND IN THE UNITED STATES AS SHOWN BY GOVERNMENT REPORT.

CARDIFF GYPSUM PLASTER CO.
MANUFACTURERS FORT DODGE, IOWA

The

COLOR

That Never Fades.

Tried out for 20 years. For Mortar, Brick, Cement, Stone, etc. Red, Brown, Buff, Purple and Black.

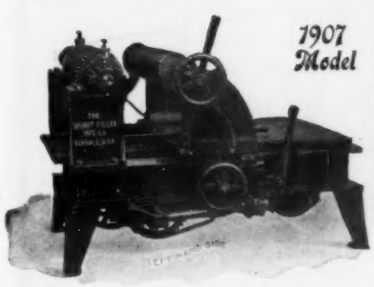
Rickeston Mineral Paint Works,
MILWAUKEE, WIS.

Empire Gypsum Co.

The Empire Gypsum Company's new mill, with capacity of 200 tons daily, is in operation and they are prepared to promptly furnish the best quality of Empire Stucco, Empire Neat Plaster, Sterling Wood Fiber Wall Plaster and Excelsior Wall Plaster Sanded.

Garbutt, Monroe County, New York.

The Leonard Wood Fiber Machine



1907 Model

Has an Automatic, Proportional, Increasing Feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors but write for descriptive circular and terms to

The Shuart-Fuller Mfg. Co.
Successors to
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THE SHUART-FULLER MFG. CO., Elyria, Ohio

Gentlemen:—What is the very best, cash-with-order price you will make on anothe Leonard Fiber Machine? We want no other machine but yours. It is all and more than you claimed for it, and is running steady ten hours every day and doing fine work.

Yours truly, GUARANTY WOOD FIBER PLASTER CO., Chattanooga, Tenn

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CALCINING GYPSUM
NO KETTLES USED — PLANTS IN OPERATION

Great Saving in Cost of Manufacture and Quality of Product Guaranteed.

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for anything on the Material Dealer's Bill in Plastering Material—anything, from Lathing up to Finishing Plaster or Decorative Finishes—

Mark This:

The Service here is Excellent
The Attention Courteous
The Quality Prime
The Preparation Perfect
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We have catered to the Building Material Trade for nearly half a century with the Highest Class of Goods and with "The Square Deal" policy.

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Dealers enjoy that comfortable sense of "getting things right" in handling United States Gypsum Company Products, and in putting them into the hands of the Builder and Contractor.

The Prestige of a House and the Reputation of its goods are Valuable Assets to any Dealer handling its products.

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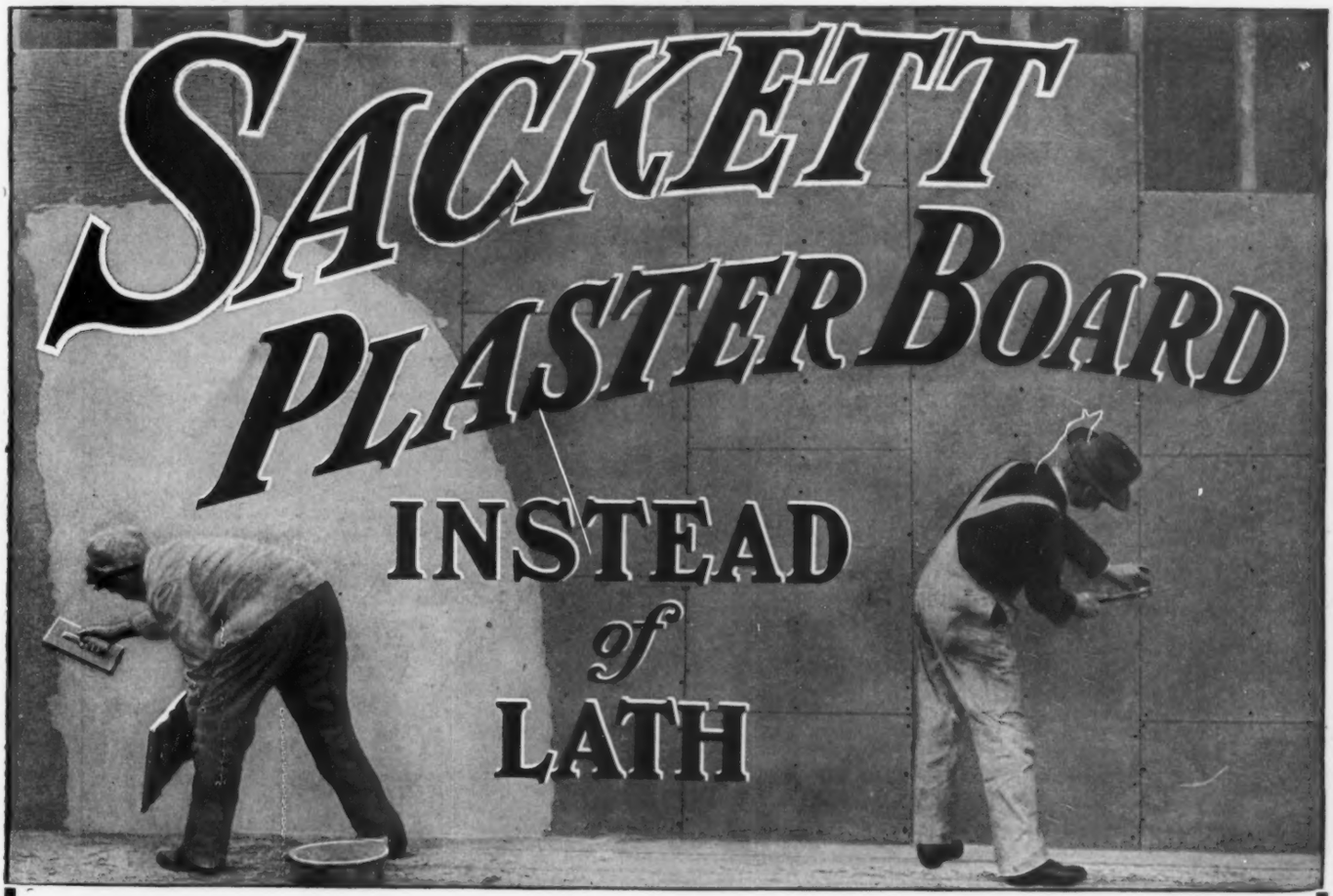
This Prestige and Reputation are enhanced by the Advertising we do. We co-operate with our Dealers in pushing our Products—supply them with snappy, up-to-date Selling Literature for each Product and Brand; booklets, mailing cards, etc., for the Dealer's use, imprinted with his own advertisement. Our advertising matter is exceptionally strong, bright and attractive—replete with "ginger" and selling force—it makes business for the dealer.

United States Gypsum Company

Chicago Cleveland Minneapolis



Economy in Building Construction

When you build—whether it be a small cottage or the largest hotel—**use Sackett Plaster Boards instead of lath.** You will **save time in construction,** your walls will be more **fire-proof,** the plaster **will not fall,** and there will be **little** or **no warp to the trim.**

Sackett Plaster Boards come in sheets or slabs 32x36 inches ready to be nailed direct to the studding, furring or beams, presenting a smooth continuous surface to which is applied the finishing plaster to complete the wall, as shown above. The saving in labor makes the improvement not only superior to, but less costly than the antiquated lath and plaster construction.

Sackett plaster boards are **not** an experiment. Their value has been proved in **sixteen years of use** where the supply has never yet caught up with the demand. They are used in the greatest hotels in the country, in theatres, apartment houses, churches and residences.

Sackett Plaster Board is an efficient and economical fire-proofing between floors and for protecting exposed wooden surfaces. It is also used extensively instead of lumber as outside sheathing under weather boards.

Carried in stock by **up-to-date building material dealers** everywhere.

Illustrated **booklet** regarding this construction, showing buildings all over the country where it has been used successfully and economically, with **samples,** mailed free on request to any of the following General Distributers:

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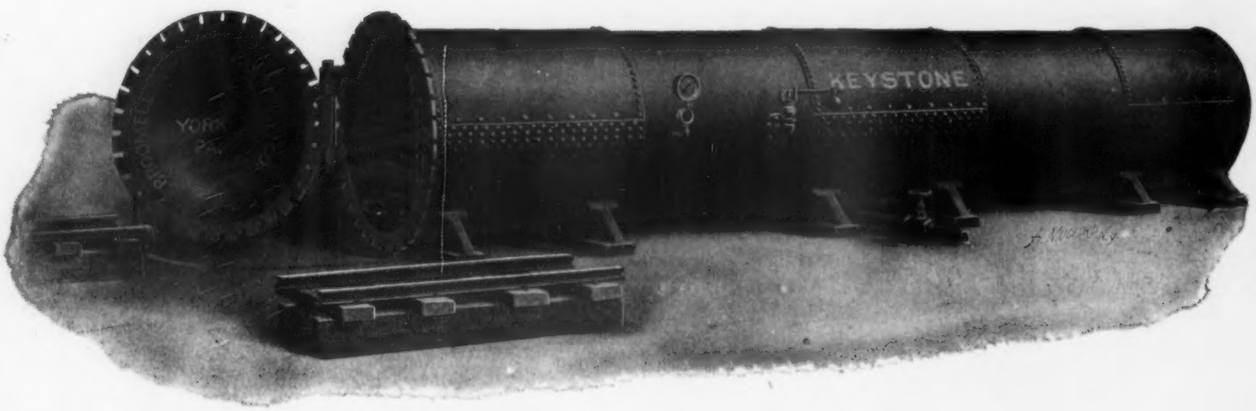
SPECIAL WORK OF ANY KIND BUILT FROM BLUE PRINTS.



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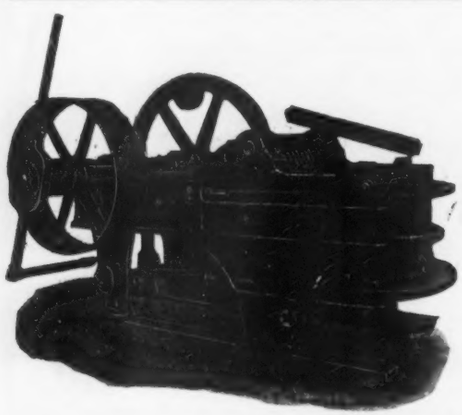

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for soft rocks, burnt lime, etc.

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SPECIAL CRUSHER-GRINDERS FOR LIME HYDRATORS.

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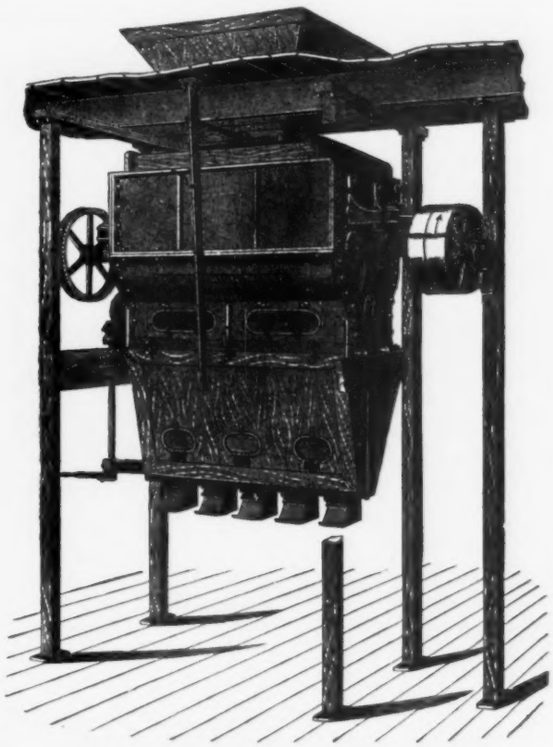

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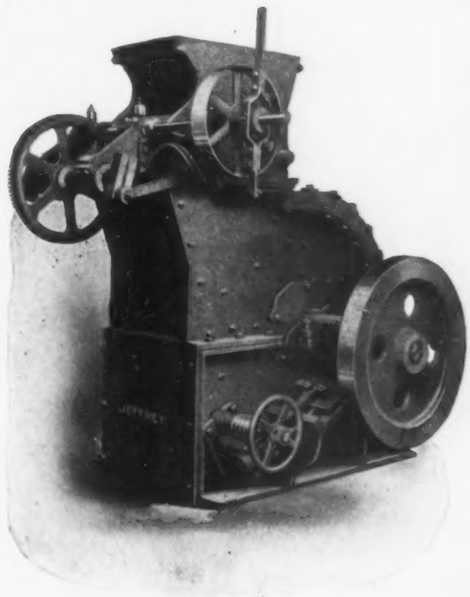

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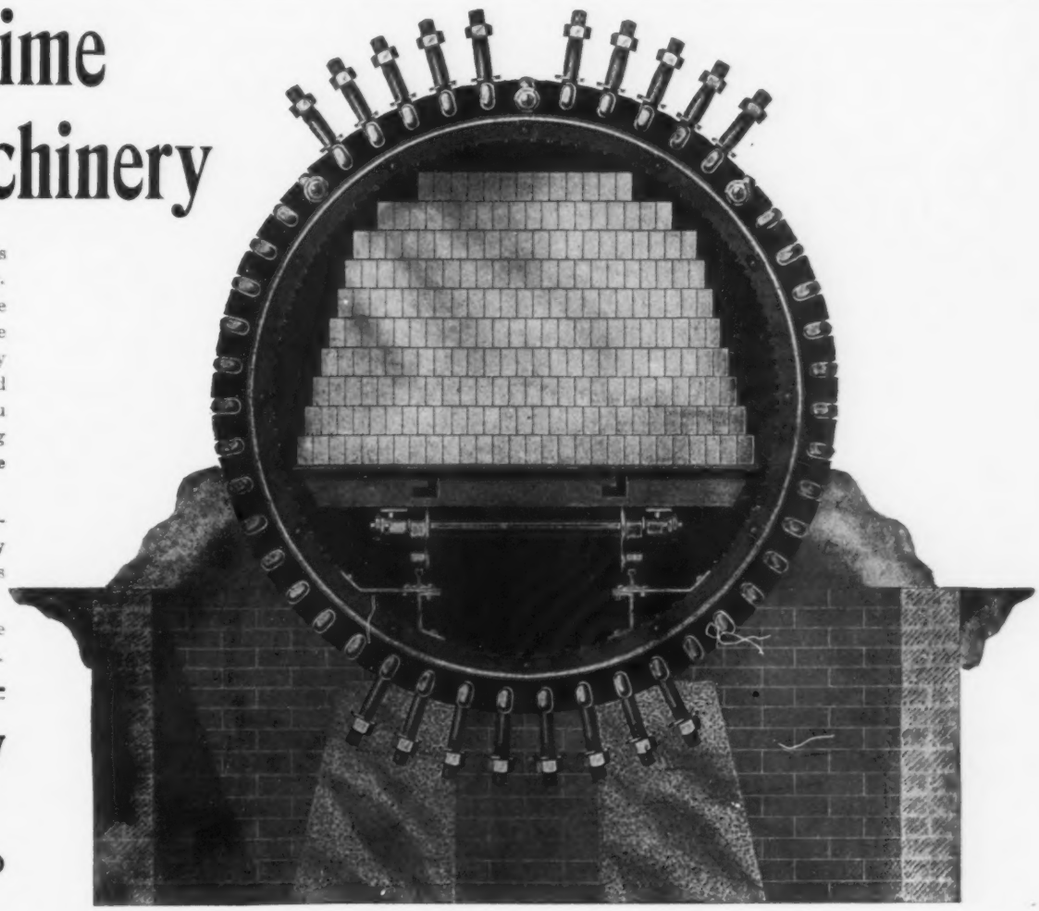

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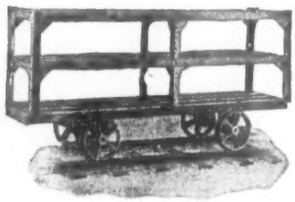

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